

Do Spouses Know How Much Fatigue, Pain, and Physical Limitation Their Partners With Rheumatoid Arthritis Experience? Implications for Social Support

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Objective. To determine whether perceptions of clinical manifestations (fatigue, pain, and physical limitation) of rheumatoid arthritis (RA) differ between spouses and their partners with RA, and to determine whether the differences are associated with the perception of beneficial and problematic spousal social support.

Methods. English-speaking adults with RA of ≥ 6 months' duration and their spouses ($n = 222$ couples) completed standardized questionnaires for fatigue, pain, physical limitation, beneficial spousal support, and problematic spousal support. Spouses completed questionnaires based on their perception of their partner with RA. Agreement scores for fatigue, pain, and physical limitation were calculated by subtracting spouse scores from the scores of the partner with RA. Agreement levels were defined a priori: agreement (within \pm one-half of a minimum clinically important difference [MCID] unit), overestimator ($<$ one-half an MCID), and underestimator ($>$ one-half an MCID). Separate hierarchical linear regression models were used to measure the association between beneficial support and problematic support after adjusting for RA duration, physical health, sex, educational level, relationship duration, and satisfaction.

Results. Response rate for couples was 82%. Relative to participants with RA, spouses overestimated fatigue (26%), pain (29%), and physical limitation (39%), and underestimated fatigue (11%), pain (17%), and physical limitation (34%). After statistically controlling for demographic, disease, and psychosocial variables, participants with RA whose spouses underestimated fatigue received more problematic support ($R^2 = 3.7\%$, $P = 0.002$), as did those whose spouses underestimated or overestimated physical limitation ($R^2 = 3.4\%$, $P = 0.017$).

Conclusion. Persons with RA perceived more problematic spousal support when their spouse underestimated fatigue, or underestimated or overestimated physical limitation levels.

INTRODUCTION

One of the greatest challenges that persons with rheumatoid arthritis (RA) report is coping with varying periods and intensities of fatigue and pain (1,2). Social support for

those with RA is a potentially modifiable psychosocial factor impacting fatigue, pain, and disability. Beneficial (positive) support links to improved physical and psychological health (3–7), including reduction in pain and disability 5 years after baseline assessment (3,4). Problematic (negative) support (e.g., lack of empathy, criticism), how-

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ever, is associated with deleterious health outcomes in RA (6–8). The effects of problematic support on health are independent of the favorable influences of beneficial support (6,7).

Persons with arthritis frequently report that their spouses have limited understanding of their illness, yet they most frequently turn to them for support (9). Little research exists on predictors of support for those with RA. Lacking an understanding of RA and its impact on those affected presumably impairs the ability to provide optimal support matching the needs of the person with RA. For example, if spouses do not recognize that their partners are experiencing high levels of fatigue, they may be unsupportive or provide remarks construed by the person with RA as overly critical. Consequently, spouses may offer insufficient support to minimize challenges in coping with RA. The stress support or optimal matching hypothesis holds that support received from others to deal with a stressful event, when matched with the demands of the particular stressor, better predicts positive health outcomes (10–12). Research has yet to contrast the perceptions of people with RA with those of their spouses and to analyze how the differing perceptions of disease impact may be associated with beneficial or problematic social support.

We are not aware of any investigations of couple concordance on perceptions of fatigue in RA, and only a few published studies have examined concordance between participants and their spouses on perceptions of pain or physical function in RA (13,14) and osteoarthritis (OA) (15,16). Several definitions for concordance have been used. Some studies have defined concordance as the perception scores of people with RA and their spouses being perfectly equal on a physical function questionnaire (13). It is, however, unreasonable to expect spouses to assess the same health domain identically, and small differences may have little meaning. Other studies have assessed health outcomes in persons with cancer or musculoskeletal pain, along with the perceptions of their spouses, and have used the lack of any significant between-group averages to define concordance (17,18). Still others have defined concordance as ± 1 point (10 cm) on a numerical rating scale or visual analog scale (16,17). And yet another study used raw difference scores not accounting for direction of discordance (14). More innovative approaches to defining concordance are required to allow assessment of couple concordance levels (i.e., overestimation, agreement, underestimation), identification of their relationship to health outcomes, and identification of clinical implications for the development of interventions to improve health outcomes.

The objectives of our study were to determine whether perceptions of the clinical manifestations of RA (fatigue, pain, and physical limitation) differ between spouses and their partners living with the disease, and to determine whether differences in perceptions associate with spousal support. We hypothesized that, after adjusting for differences in demographic, psychosocial, and disease factors, concordance between persons with RA and their spouses on perceptions of RA, compared with spouses' underesti-

mation and overestimation, would associate with more beneficial and less problematic spousal support.

PATIENTS AND METHODS

Participants and procedure. Research was in compliance with the Helsinki Declaration and approval was granted by the University of British Columbia ethics board. People living with RA were included if they met the inclusion criteria: 1) reported being diagnosed with RA by a physician, 2) had lived with RA for ≥ 6 months, 3) both the participant with RA and the partner/spouse (spouse) were ≥ 19 years of age, 4) both members of the couple provided informed consent, and 5) the couple had lived together for ≥ 12 months. Couple status was defined as married or maintaining a common-law relationship. Those excluded were unable to comprehend written English. Participants were recruited from the metro Vancouver area of British Columbia via postings in rheumatologists' offices, as well as nationwide via electronic advertisements with patient advocacy groups. Postings invited couples to share RA experiences.

Interested persons requested questionnaires for themselves and their spouse; participants were screened via telephone or e-mail to determine eligibility. To reduce missing data, research staff examined all returned questionnaires for unanswered questions and contacted participants via telephone to complete the information. Each couple member was instructed to independently complete and mail standardized questionnaires assessing the fatigue, pain, and physical limitation of the participant with RA. Spouses were asked to complete questionnaires based on their perception of their partner with RA. Persons with RA reported beneficial and problematic spousal support. The participants with RA and their spouses responded based on experiences in the preceding week. The questionnaire included items about physical health, relationship satisfaction, and comorbidities. Completion of questionnaires took ~ 35 minutes. Couples' names were entered into lottery draws for prizes valued between \$50 and \$500.

Measures. *Beneficial and problematic spousal support.* Spousal support received by the partner with RA was assessed with a scale previously designed and validated specifically for people with RA (6). On it, 16 items assess beneficial support (e.g., Does your spouse boost your spirits; give you advice if you want it?) and 4 items assess problematic support (e.g., Does your spouse find it hard to understand the way you feel?). Responses to questions ranged from 1 to 5, where 1 = never and 5 = almost always. Items were summed and an average score was calculated for both beneficial and problematic support (higher scores reflected greater levels of beneficial or problematic support). Cronbach's alpha for the beneficial support scale showed excellent internal consistency ($\alpha = 0.94$). Cronbach's alpha for the problematic support scale evidenced good internal consistency ($\alpha = 0.85$).

Fatigue. The 16 items of the Multidimensional Assessment of Fatigue scale were used to assess fatigue and degree of interference in daily activities (e.g., How severe

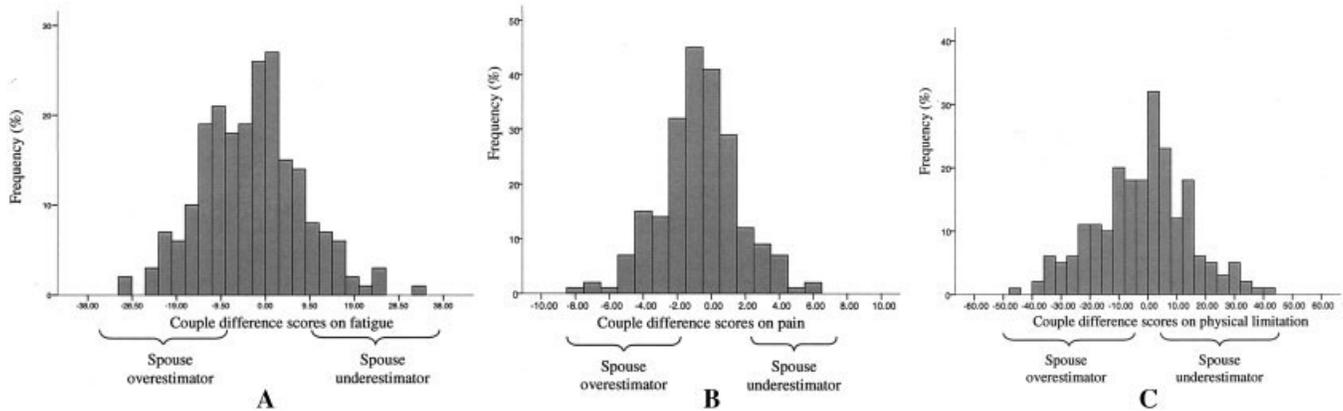


Figure 1. Distribution of couple concordance levels on **A**, fatigue, **B**, pain, and **C**, physical limitation ($n = 222$ couples).

is the fatigue? To what degree has fatigue interfered with your ability to do household chores; work?) (19). Cronbach's alpha for the scale showed excellent internal consistency ($\alpha = 0.93$) and the measure has high concurrent validity with other mood and fatigue scales (20). Spouses completed identical Multidimensional Assessment of Fatigue questions reworded to reflect their perceptions of the fatigue level of their partner with RA; Cronbach's alpha showed acceptable internal consistency ($\alpha = 0.74$).

Pain. An 11-point numerical rating scale was used to assess RA pain in the previous week (21). The scale ranges from 0 to 10, where 0 = no pain and 10 = extreme pain. The spouses completed an identical scale but worded in the context of their perception of their partner's pain level in the preceding week.

Physical limitation. The Disabilities of the Arm, Shoulder, and Hand (DASH) outcome questionnaire was used to assess multidimensional aspects of physical limitation (22). The DASH assesses a range of physical challenges experienced by people with RA (e.g., Ability to open a tight jar? Wash your back? Participate in social activities?). Responses ranged from 1 to 5, where 1 = no difficulty and 5 = unable to do. Total scores range from 0 to 100, where 0 = no disability and 100 = most severe disability. Cronbach's alpha showed good internal consistency ($\alpha = 0.86$). The spouses of persons with RA completed DASH questions that were identical except for being worded in the context of their perception of their partner's physical limitation level in the preceding week ($\alpha = 0.82$).

Sociodemographic and clinical variables. The sex of persons with RA was coded female = 0 and male = 1. The highest level of education for the participant with RA was scored from 1 = elementary school through 8 = graduate or postgraduate training. The duration of the couple's relationship was reported by the person with RA and scored in years. RA duration was scored according to years living with a physician-confirmed diagnosis of RA.

General physical health. The general physical health of participants with RA was assessed with the physical health component summary score on the Short Form 12 health survey (23). Respondents reported their level of physical health in general (ranging from poor to excellent)

and the extent to which their physical health limited their ability to perform specific tasks or social activities. Standardized scores on the 12-item instrument range from 0 to 100, with higher scores representing better health ($\alpha = 0.89$).

Relationship satisfaction. RA participants' spousal relationship satisfaction was assessed with the 7-item Relationship Assessment Scale (24). The items assess how well a spouse meets one's needs, how well the relationship compares with others', and how well expectations about the relationship have been met. The items also assess relationship regrets, level of love for the spouse, and relationship problems. Final scores range from 1 to 5, where 1 = low and 5 = high. The Relationship Assessment Scale has demonstrated moderate to high correlations with marital satisfaction across age-diverse samples (25). Cronbach's alpha for the scale showed excellent internal consistency ($\alpha = 0.93$).

Statistical analysis. Bivariate analyses were conducted to measure the relationship between predictor variables and outcome variables. Factors relating to social support outcomes based on previous research and theory (demographic variables of the person with RA [sex, education, relationship duration, general physical health], disease-related variables [duration], and psychosocial variables [relationship satisfaction]) were treated as statistical controls in the multivariate analyses (26–28).

To calculate concordance between the perception of fatigue, pain, and physical limitation of the participants with RA and their spouses, difference scores were calculated by subtracting spouse scores from those of the person with RA. Published minimum clinically important difference (MCID) scores for fatigue of 18.7 (29), for pain of 1.97 (21), and for physical limitation of 10 (30) in persons with RA aided in defining spouse concordance levels a priori. As shown in Figure 1, couple concordance levels included agreement (agreement score within \pm one-half of an MCID unit), spouse overestimator (agreement score < one-half of an MCID unit), and spouse underestimator (agreement score > one-half of an MCID unit). The MCID is the smallest difference in score on an outcome measure that patients perceive as beneficial. It is typically used as a crite-

	Person with RA	Spouse
Women, %	73	28
Age, years	60 ± 14	60 ± 14
Median education level completed	Technical/trade school	Technical/trade school
Employment status, %†		
Full time	22	42
Part time	12	6
Homemaker	11	6
Retired	37	41
Disability pension	15	1
Unemployed	1	1
Student	1	1
Other/did not specify	2	4
White, %	92	93
≥1 comorbidity, %	59	51
Relationship duration, years	31 ± 16	31 ± 16
≥1 child, %	82	82
RA duration, years	12 ± 11	–
General physical health score	36.2 ± 10	–
Relationship satisfaction score	4.3 ± 0.8	–
Problematic support score	2.3 ± 0.7	–
Beneficial support score	3.8 ± 0.8	–

* Values are the mean ± SD unless otherwise indicated. RA = rheumatoid arthritis.
† Percentage totals do not add up to 100% due to rounding errors.

tion to assess clinical efficacy (31). Given the limitations of perfect agreement defining concordance, ± one-half MCID scores were used pragmatically to aid in defining concordance (i.e., couple difference score equivalent to the span of 1 MCID unit was considered spouse agreement). For example, persons with RA with a pain numerical rating scale score of 7 whose spouses reported a score of 6, 7, or 8 were considered in concordance; a spouse reporting a score of 9 or 10 was an overestimator; and a spouse reporting a score of ≤5 was an underestimator of pain (Figure 1).

For the multivariate analyses, couple concordance levels were trichotomized into spouse underestimator (0 versus 1), agreement (0 versus 1), or spouse overestimator (0 versus 1) for each of fatigue, pain, and physical limitation. Couple agreement served as the reference category. Others have adopted a similar statistical approach in examining spousal underestimation and overestimation (15,16). Spouse underestimator and overestimator vari-

ables for fatigue, pain, and physical limitation were entered as step 2 in separate hierarchical linear regression models to measure association with beneficial and problematic support, after controlling for sex, education level, disease duration, physical health, relationship duration, and relationship satisfaction of the person with RA in step 1. The 2-tailed alpha level remained at $P = 0.05$ for all hypothesis testing as the tests reflected an examination of 1 model (i.e., couple concordance on perception of RA clinical manifestations associated with more beneficial and less problematic support).

RESULTS

Sample characteristics. Of the 290 people who contacted the researchers, 15 were ineligible due to non-RA diagnosis (n = 8), language (n = 3), not cohabitating (n =

	1	2	3	4	5	6	7	8
1. Sex	–							
2. Education	–0.17*	–						
3. Physical health	0.12	0.19†	–					
4. Years married	0.18†	–0.25†	–0.15*	–				
5. RA duration, years	–0.08	–0.02	–0.12	0.12	–			
6. Relationship satisfaction	0.04	0.10	0.16*	0.06	0.15*	–		
7. Beneficial support	0.08	0.07	0.20†	0.10	0.11	0.70†	–	
8. Problematic support	0.01	–0.01	–0.14*	0.05	–0.07	–0.34†	–0.33	–
Mean ± SD	–	–	36.2 ± 10.0	31 ± 16	12 ± 11	4.3 ± 0.8	3.8 ± 0.8	2.3 ± 0.7

* Correlation is significant at the 0.05 level (2-tailed).
† Correlation is significant at the 0.01 level (2-tailed).

Table 3. Bivariate correlations and descriptions of participants with rheumatoid arthritis (n = 222 couples)

	Fatigue			Pain			Physical limitation		
	Spouse overestimation	Agree	Spouse underestimation	Spouse overestimation	Agree	Spouse underestimation	Spouse overestimation	Agree	Spouse underestimation
Beneficial support	0.09	-0.10	0.02	0.09	0.04	-0.19*	-0.04	-0.01	0.04
Problematic support	-0.18*	0.07	0.15†	-0.05	-0.15†	0.16*	0.07	-0.18*	0.10‡
Beneficial support, mean ± SD	3.80 ± 0.96	3.69 ± 0.74	3.86 ± 0.76	3.31 ± 0.96	3.79 ± 0.79	3.91 ± 0.55	3.75 ± 0.72	3.76 ± 0.80	3.81 ± 0.83
Problematic support, mean ± SD	2.13 ± 0.62	2.36 ± 0.71	2.59 ± 0.83	2.26 ± 0.72	2.26 ± 0.71	2.60 ± 0.74	2.38 ± 0.81	2.10 ± 0.62	2.40 ± 0.66

* Significant at the 0.01 level (2-tailed).
† Significant at the 0.05 level (2-tailed).
‡ Significant at the 0.10 level (2-tailed).

3), or being single (n = 1). The response rate of eligible couples requesting and returning questionnaires (both the person with RA and the spouse) within a week of each other was 82% (n = 226 of 275). Of those, 4 couples were excluded due to significant amounts of missing data. Among the 222 couples completing the study, 217 were in heterosexual relationships; the average age was 60 years, ranging from 21 to 88 years; on average, the participant with RA had lived with RA for more than a decade; and the couples were in long-term relationships with high levels of relationship satisfaction (mean score 4.3, range 2–5) (Tables 1 and 2).

Concordance between spouses on perception of RA participants' fatigue, pain, and physical limitation ranged from approximately one-quarter to two-thirds. Figure 1 illustrates the range of concordance, with the center area between negative one-half an MCID value and positive one-half an MCID value reflecting couple agreement, and the areas to the left and right of center reflecting spouse overestimators and underestimators, respectively. Of the spouses, 38% disagreed with their RA partners' perception of fatigue; of these, 26.1% of spouses overestimated fatigue and 11.4% underestimated fatigue. Nearly half the spouses (46%) lacked concordance with their

partner on perception of pain (29% overestimated and 16.7% underestimated). Approximately three-quarters of the spouses lacked concordance with the person with RA on perceptions of physical limitation (39.2% overestimated and 33.9% underestimated).

Association of concordance for fatigue with social support. In the bivariate analyses, no significant relationship existed between spousal agreement levels for fatigue and the perceptions of the persons with RA about beneficial spousal support. Analyses, however, revealed that when spouses underestimated the fatigue of the person with RA, the person with RA was likely to perceive greater problematic spousal support (Table 3). Conversely, when spouses overestimated the fatigue of the person with RA, the person with RA was likely to perceive less problematic spousal support (see Table 3).

In the multivariate analyses accounting for the effects of demographic, disease-related, and psychosocial variables in step 1 of the regression model (12.6% of the variance) (Table 4), persons with RA whose spouses underestimated their level of fatigue reported greater problematic spousal support than those whose spouses were in concordance or overestimated their level of fatigue ($\beta = 0.133$, $P = 0.05$,

Table 4. Hierarchical linear regression analyses examining spousal concordance regarding fatigue, pain, and physical limitation, and spousal problematic support (n = 213 couples) and beneficial support (n = 217 couples)

Predictors	Fatigue concordance				Pain concordance				Physical limitation concordance			
	Problematic support		Beneficial support		Problematic support		Beneficial support		Problematic support		Beneficial support	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1*		12.6%†		50.6%†		13.5%†		52.5%†		13.9%†		52.4%
Relationship satisfaction	-0.323†		0.671†		-0.333†		0.689†		-0.353†		0.690†	
Physical health			0.110‡				0.099§				0.101‡	
Step 2¶		3.7%‡		0.4%		0.8%		0.6%		3.4%‡		0.3%
Relationship satisfaction	-0.312†								-0.360†			
Physical health			0.08								0.09	
Spouse underestimator	0.133‡		0.041		0.087		0.010		0.214‡		0.036	
Spouse overestimator	-0.119		0.059		-0.018		0.079		0.188§		-0.025	
Total R ²		16.3%		51.0%		14.3%		53.1%		17.3%		52.6%

* Statistical control variables included the sex, highest level of education obtained, general physical health, years married, years living with rheumatoid arthritis, and relationship satisfaction of the person with rheumatoid arthritis. The table only displays the statistically significant variables that were controlled for in the analyses.

† $P < 0.001$.

‡ $P < 0.01$.

§ $P < 0.05$.

¶ Only displays the statistically significant variables that were controlled for in the analyses.

95% confidence interval [95% CI] 0.001–0.627). Spouse underestimators of fatigue explained an additional 3.7% of the variability in problematic spousal support ($P = 0.002$). No significant relationship existed between spousal agreement levels for fatigue and the perceptions of persons with RA about beneficial spousal support.

Association of concordance for pain and social support. Bivariate analyses revealed that when spouses underestimated the pain experienced by the person with RA, the person with RA reported significantly greater problematic spousal support (Table 3). Conversely, when couples were in agreement about pain, persons with RA were significantly more likely to report less problematic support. Participants with RA whose spouses underestimated their level of pain also reported lower levels of beneficial support (Table 3).

In the multivariate analyses, the control variables explained 13.5% ($P < 0.001$) and 52.5% ($P < 0.001$) of the variability in problematic and beneficial support, respectively. Analyses revealed no significant relationships between couples' discordant views on pain and the perceptions of the person with RA about problematic or beneficial spousal support.

Association of concordance for physical limitation and social support. In bivariate analyses, persons with RA whose spouses were in agreement on perceptions of physical limitation were less likely to report receiving problematic spousal support, and those whose spouses were underestimators were more likely to indicate problematic support (Table 3).

After accounting for the effects of demographic, disease-related, and psychosocial variables (13.9% variance accounted for) in the multivariate analyses (Table 4), participants with RA whose spouses overestimated or underestimated level of physical limitations reported receiving greater problematic support than couples in concordance (overestimators: $\beta = 0.214$, $P = 0.008$, 95% CI 0.044–0.506; underestimators: $\beta = 0.188$, $P = 0.02$, 95% CI 0.092–0.584). Couple concordance explained an additional 3.4% of the variability in problematic social support received ($P = 0.02$) (Table 4). No significant association existed between concordance on perceptions of physical limitation and beneficial support.

DISCUSSION

Our findings provide support for the optimal matching hypothesis, which contends that support is effective when it is a match with perceived needs (10–12). We hypothesized that couple concordance on levels of fatigue, pain, and physical limitation would be associated with persons with RA reporting that their spouses provided higher-quality support. Findings suggest that couples' discordant views of fatigue and physical limitation in particular are associated with significantly greater problematic spousal support, even after adjusting for the effects of the sex, education, physical health, years married, disease duration, and relationship satisfaction of the person with RA.

Results suggest that persons with RA whose spouses underestimated their fatigue are more likely to report receiving greater problematic spousal support. Others have found such negative spousal interactions as problematic support to have deleterious effects on patient outcomes (32). To many without the disease, fatigue associated with RA may be an invisible dimension of RA due to the challenge of recognizing the complexity or severity of symptoms. Consequently, spouses not recognizing the severity of fatigue in their partners may be more critical when their partners are not able to participate in activities, or they may be less sympathetic to the emotional needs of those coping with RA.

As expected, our results suggest that discordant spousal perception of physical limitation in RA is significantly associated with the perception of greater problematic support. Spouses' overestimation or underestimation of physical limitation in partners with RA was likely associated with being overly compensatory to those with poorer functioning or overly solicitous to partners with few physical limitations (33). In a study of 188 couples, discordant spousal perception of RA-related disability was associated with poorer well-being in persons with RA (13). Problematic spousal support in RA is linked with poorer coping behaviors (8), but it may be reduced when couples are in agreement about the challenges the disease presents.

We were initially surprised to find no relationship between spousal overestimation or underestimation of pain and support. Some research has found patients and caregiver estimations of pain in cancer (17), OA (16), and RA (13) to be associated with greater caregiver or patient well-being when concordance exists. Although assessment of well-being is not a proxy for support, we expected an association between spousal overestimators and underestimators of pain with social support. A more multidimensional assessment of pain than the single item used in our study may allow for a more meaningful interpretation of couple concordance on perceptions of pain. Another explanation is that what is related to support is not recognition of pain per se but more a recognition of pain coping behaviors. These behaviors are visible actions a person attuned to the spouse's experience may recognize and support. Some may be more sympathetic toward those in pain and coping with it in silence. Others may respond to pain negatively when it is verbalized.

One limitation of the current research is that we relied exclusively on the perceptions of spouse support of the person with RA. The accuracy of spousal perceptions of RA may not be critical to effective support provision. The spouse may have provided support, yet the behavior may not have been recognized as present or supportive by the person with RA. Personality factors, for example, might taint the lens through which one views the presence or absence of support. Future research would benefit from, in addition to obtaining data on each spouse's perceptions, obtaining observational data.

Longitudinal studies are required to establish causality between perceptions of RA clinical manifestations and spousal support. A family-systems perspective and accounting for disease course might offer clues to understanding the causal chain. For example, discordant couple

perceptions might be most predictive of support in early RA before a history of (non)supportive RA behaviors has been established or during times of disease flare up. Our findings, however, suggest that couple discordance on perceptions of physical limitation and fatigue in RA may be an indicator of potential problems in spousal support. Given the small magnitude of our findings, more research is required to determine whether they are clinically meaningful.

Our sample of individuals with RA was highly satisfied with their spousal relationships and was homogenous on many sociodemographic variables. The generalizability of our study findings is limited given that couples less satisfied in their relationships may differ on a variety of factors. Research involving more diverse populations in terms of relationship satisfaction and duration may aid in better understanding predictors of social support over the disease course (34,35).

Although we adjusted for a number of factors linked to support that helped explain significant amounts of the variability in support outcomes, including relationship satisfaction and general physical health, future research should examine other support recipient and support provider factors to increase understanding of social support predictors. Empathic responding, for example, has been identified in research as a type of relationship-focused coping correlating with positive health outcomes and stress reduction (36). It may also correlate with support provision. Personality traits such as optimism and neuroticism may also help explain individual differences in expectations, experience, and effectiveness of spousal support and couple concordance. Other third variables such as satisfaction with support, as has recently been suggested (37), may play central roles in ultimately affecting health outcomes. Gaining an increased understanding of such factors would not only help explain predictors of spousal support and couple concordance but also inform the development and evaluation of psychoeducational interventions.

Although support intervention studies in general have produced mixed results (38), self-management and other education programs focusing on both the person with RA and the spouse may be able to both minimize differences in perceptions of RA symptoms and improve the quality of spousal support. A randomized controlled trial of the intervention developed by Karlson and colleagues (39) for people with lupus and their partners revealed that teaching couples communication and disease self-management skills promoted support and resulted in reduced fatigue in people living with lupus. Keefe and colleagues (40) conducted a spouse-assisted coping skills intervention for couples in which one person was affected by OA. Keefe reported that a couple's focus on effective pain coping skills, including skills training for spouses and couples' communication skills, significantly improved outcomes in the spouse with OA. Further research is required to determine whether couple concordance on perceptions of RA predicts support over time. Such advances are necessary to inform the development of couple-based interventions.

Our research findings are consistent with calls for work on dyadic coping, recognizing the role of both members of

a couple on health outcomes (41). Additionally, our results highlight a direction for future research to better understand how coping with and adapting to chronic illness is influenced by both persons in a relationship at many levels over time (e.g., age, sex, relationship satisfaction, phase of illness, stressors associated with coping) (34). Our findings suggest a new avenue of research 1) to better understand how couple awareness of RA clinical manifestations is linked to spousal social support and 2) to modify problematic spousal support through better understanding of RA clinical manifestations, thereby achieving positive health outcomes. Longitudinal research needs to identify predictors of spousal support and to delineate the relationship between couples' disease perceptions and receipt of spousal social support.

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All authors were involved in drafting the article or revising it critically for important intellectual content, and all authors approved the final version to be submitted for publication. Dr. Lehman had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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