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Pain and Functioning of Rheumatoid Arthritis Patients based on Marital Status: Is a Distressed Marriage Preferable to No Marriage?

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Abstract

Relationships may influence adjustment to chronic pain conditions like rheumatoid arthritis (RA). We examined how both marital status and marital adjustment were related to pain, physical disability, and psychological disability in 255 adults with RA. Among married participants ($n = 158$), better marital adjustment (assessed using the Locke-Wallace Marital Adjustment Scale) was correlated with less pain, physical and psychological disability (all p values $< .05$). Married participants were divided into distressed ($n = 44$) and non-distressed ($n = 114$) subgroups and compared with unmarried participants ($n = 97$). Controlling for demographics and disease severity, unmarried participants had higher affective pain ($p = .009$) and higher psychological disability ($p = .02$) than only the non-distressed married participants, but unmarried participants did not differ from distressed married participants. These findings suggest that being married in itself is not associated with better health in RA, but that being in a well-adjusted or non-distressed marriage is linked with less pain and better functioning.

Perspective—This study examined relationships of marital status and marital adjustment to pain and physical and psychological disability in rheumatoid arthritis (RA). Findings underscore the importance of considering not only marital status but also degree of marital adjustment in RA and may inform clinical interventions in this population.

Keywords

rheumatoid arthritis (RA); marital status; marital adjustment; pain; psychological disability

Introduction

Interpersonal relationships generally, and marital relationships specifically, may be key to understanding adjustment to chronic pain conditions¹⁹ such as rheumatoid arthritis (RA). The physical and psychological effects of RA, which is characterized by a progressive, often unpredictable course of joint pain and increasing disability, both influence and are influenced

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by the interpersonal relationships of those living with this condition.¹¹ Rheumatoid arthritis can strain one's marital relationship because of increased limitations on activities, changes in responsibilities, and emotional stress.¹⁸ Further, when a patient's spouse is unable to provide social, instrumental, or emotional support, the person with RA may experience higher levels of pain and dysfunction.^{8,16} Several studies have found that unmarried patients with RA exhibit greater disease progression and disability than their married counterparts.^{39,41}

The available literature, however, needs to be advanced in several ways. First, studies that have examined the association between marital status and disability in arthritis^{39,41} have usually not considered the adjustment of the marital relationship. The quality of marriage, or marital distress, may be more important than simply whether or not one is married. To our knowledge, distressed married, non-distressed married, and unmarried groups have not been compared on domains of function in RA. Second, relationship research in RA often lacks a comprehensive examination of health and function; measures of physical disability and psychological disability should be included in addition to pain.⁷ Considering that psychological disability is twice as common in RA as in the general population¹² and is related to worse pain, higher functional disability, and higher rates of mortality,^{2,9} this may be an especially important domain to consider in this population. Without a comprehensive set of measures, it is difficult, if not impossible, to get a full picture of the link between marital variables and health status. Third, it is important to control for potential confounding variables that are often related to marital status, marital adjustment, and health status in RA.^{36,41} Age, gender, race, and education are often associated with pain, physical disability, and psychological disability in people with arthritis,^{4,10,25,39,40,44} and these demographic variables often covary with marital variables. Other recent work in this area has included similar lists of control variables.¹⁹ Finally, pain and adjustment are tied to the physiological severity of the disease, and analyses of pain and disability should also control for disease severity.

The aims of this study were: a) to examine the association between marital adjustment and a comprehensive set of health status measures in married participants with RA; and b) to examine differences in health status in RA patients who are in distressed marriages versus those in non-distressed marriages versus those who are unmarried. In addition to demographics, disease severity was included as a covariate in analyses because of its potential causal influence on pain, physical disability, and psychological disability. We hypothesized that a) better marital adjustment would be associated with better health status; and b) marital group differences would be amplified when considering marital adjustment; that is, people in non-distressed marriages would have better health status (i.e., lower sensory and affective pain, physical disability, and psychological disability) than both participants in distressed marriages and those who are unmarried.

Materials and Methods

Participants and Procedures

The study sample consisted of 255 patients with RA with a mean age of 55.25 ($SD = 12.12$). In the sample, 207 patients (81.2%) were female, and 172 were Caucasian (67.5%), 73 were African-American (28.6%), 4 were Asian (1.6%), 2 were American Indian/Alaskan Native (1%), and 4 identified as "Other" (1.6%). In this sample, 144 participants (56.5%) had a high school education or below, 62 (24.3%) had a college degree, and 43 (16.9%) had a graduate degree. In the sample, 158 patients (62.0%) were married, and 97 (38.0%) were unmarried.

This study used data from participants who were entering a randomized in a clinical trial of expressive writing and coping skills training in RA patients (#NCT00088764), and the data presented in this paper were collected at the baseline evaluation, prior to randomization. (Although 264 patients were randomized, the Locke-Wallace Marital Adjustment Scale was

missing from nine married participants, who were dropped from analyses, leaving 255 for the current sample.) Participants were recruited in approximately equal numbers from metropolitan Detroit, Michigan and the catchment area of Duke University Medical Center in North Carolina. All participants provided informed consent. This study was approved by the Wayne State University Human Investigation Committee and the Duke University Health System Institutional Review Board.

Participants were given a physical examination by study rheumatologists to determine if they met eligibility criteria and were included only if they were diagnosed with RA according to 1987 American College of Rheumatology criteria and reported RA pain or stiffness in the past week (thereby excluding people with RA in full remission). Patients were excluded if they a) had a primary rheumatic disorder other than RA or another organic disease that significantly affected functioning (e.g., COPD, cancer); b) were known to have or were judged by the physician to have cognitive impairment (e.g., dementia, retardation, psychosis) or illiteracy; c) were currently in a formal behavioral pain management program; d) had experienced major stressful life changes in the prior six months; or e) were unable to ambulate without walking aides or were physically unable to write. All patients provided demographic information and completed questionnaires assessing pain, physical disability, and psychological disability, and—for patients who were married—marital adjustment. Physicians provided ratings of disease severity.

Measures

Marital Adjustment—The Locke-Wallace Marital Adjustment Scale²⁷ is one of the most widely used measures of marital and relationship adjustment and has been used in other studies of arthritis.^{28,43} It includes 15 questions that assess overall level of happiness, level of agreement on a number of issues, and ways of handling disagreements. This measure was completed only by patients who were married. Scores in the current sample ranged from 22 to 156, and the scale demonstrated good internal consistency (Cronbach's $\alpha=.74$). We used the recommended cut-off score of 100 on the Locke-Wallace to classify married participants as either distressed (<100) and non-distressed (≥ 100).²⁷ The married participants in this sample ($n = 158$) had a mean of 112.71 ($SD = 27.70$).

Physician's global rating of disease activity—Rheumatologists at both study sites participated in standardized training to conduct a joint evaluation as part of their exam, blind to other study measures. This rating is based on a full 32-joint examination for tenderness and swelling conducted by the physician as part of the examination. The physician then used a visual analog scale (VAS) to rate each participant's disease activity. The VAS is a horizontal line measuring 100 mm with anchors of "no disease activity" to "high disease activity." Following the participant's physical exam, the rheumatologist marked the line at the point representing their global rating of the participant's disease activity. The VAS score was determined by measuring the distance, in mm, from the beginning of the line to the marked point. Similar methods have been used in past studies.¹ This sample had a mean of 1.39 ($SD = 0.80$) on disease activity.

Pain—The McGill Pain Questionnaire (MPQ)³² is one of the most widely used and validated self-report pain questionnaires and has been used in a number of studies of RA.^{14,33} The scale consists of 20 groups of pain descriptors, and patients were instructed to circle one word in each group (or none, if no word applied) that best described their current pain. A pain rating index (PRI) for the sensory and affective dimensions of pain was calculated by determining the mean of the numerical value assigned to the selected words (with a value of zero entered for each group if no word was selected). The sensory subscale captures the spatiotemporal and physical characteristics of the pain, whereas the affective subscale captures the unpleasantness

of the pain. In this study, we chose to analyze only these two scales, given that they are the primary dimensions of pain and have the highest reliability in this measure (due to having multiple items). This sample had mean sensory and affective pain scores of 1.31 ($SD = 0.75$) and 0.43 ($SD = 0.45$), respectively.

Physical and psychological disability—The Arthritis Impact Measurement Scales-2 (AIMS2)³¹ is a widely-used self-report questionnaire designed to measure health status in arthritis patients. The AIMS2 has been recommended by the Association of Rheumatology Health Professionals (ARHP), in collaboration with the American College of Rheumatology as a reliable and valid tool to assess patient outcomes in rheumatology research.²⁰ In this study, we used the physical disability and psychological disability summary scales. Summary scales range from 1 to 5 with higher scores indicating greater disability. The physical disability scale is a composite of the following subscales: mobility, walking, arm function, hand function, self-care tasks, and household tasks. The psychological disability scale is a composite of mood and tension subscales. Reliability and validity of the scales have been demonstrated across a number of arthritis populations.^{21,30} The physical and psychological disability subscales demonstrated very good internal consistency in the current sample (Cronbach's $\alpha = .94$ and $.91$, respectively). This sample had mean physical and psychological disability scores of 1.91 ($SD = 0.66$) and 2.17 ($SD = 0.69$), respectively.

Data Analyses—We first performed correlational analyses to examine the bivariate relationships among demographic (i.e., age, gender, race, education) and health status dependent variables (e.g., sensory and affective pain, physical disability, psychological disability). (Race was coded as into a dichotomous variable—Caucasian or minority [coded 1 or 2]—because the vast majority of non-Caucasian patients were African American, but 10 [3.9%] were of some other race/ethnic group—a number too small to separately analyze, but too large to simply drop from analyses). To test our first hypothesis, we first conducted a series of zero-order correlations between marital adjustment (as a continuous variable) and health status variables in the married participants. Next, we conducted partial correlations between marital adjustment and these health status variables, partialing out demographic variables (i.e., age, gender, race, education), and disease severity.

To test our second hypothesis, we split the married patients into distressed and non-distressed subgroups based on the Locke-Wallace Marital Adjustment Scale using the validated cut-off score,²⁷ and we compared married non-distressed, married distressed, and unmarried patients on demographic variables and disease severity using chi-square tests or ANOVAs. We then compared these three groups on dependent variables using analysis of variance (ANOVA). Post-hoc tests were conducted to examine differences among the three groups using the Sidak corrections for multiple comparisons. Finally, we compared these three marital groups on health variables using analysis of covariance (ANCOVA) controlling for demographic variables and disease severity.

Results

Correlational Analyses Between Control and Health Status Variables

Table 1 presents the correlations among control variables and health status variables. Younger age was associated with higher sensory pain, higher affective pain, and greater psychological disability. Minority racial status was associated with higher sensory pain, affective pain, physical disability, and psychological disability. Less education was associated with greater physical disability. Finally, as expected, greater disease severity was linked with greater sensory and affective pain as well as greater physical and psychological disability.

Correlational Analyses Between Marital Adjustment and Health Status Variables among Married Participants

Table 2 shows data for married participants only. Zero-order correlations indicated that better marital adjustment was significantly associated with better functioning on all health status variables, with correlations ranging from $r = -.25$ to $-.40$. After controlling for the four demographic variables and disease severity, better marital adjustment remained significantly associated with psychological disability and marginally associated with less affective pain, but not sensory pain and physical disability.

Comparisons among Distressed Married, Non-distressed Married, and Unmarried Participants

Among the 255 participants, 44 (17.3%) were classified as “distressed married”, 114 (44.7 %) were classified as “non-distressed married”, and 97 (38.0%) were unmarried. Table 3 presents the means, SDs, and test statistics for the covariates and health status measures for these three groups. The three groups did not differ significantly on age or education (both p values $> .50$). The three groups differed significantly on gender, with fewer males in the unmarried group (8.3%) than either the non-distressed married group (25.4%) or the distressed married group (25.0%; $\chi^2 = 11.46$; $p = .003$). The three groups also differed significantly on racial status, with fewer minority participants in the non-distressed married group (16.7%) than either the distressed married group (43.2%) or the unmarried group (46.4%; $\chi^2 = 23.83$; $p < .001$). The three groups differed marginally on disease severity, $F(2, 252) = 2.81$, $p = .06$, with post-hoc tests showing a trend toward higher disease severity in distressed as opposed to non-distressed married participants ($p = .07$).

The mean marital adjustment score for the total married group ($M = 112.71$; $SD = 27.70$) fell within the non-distressed range; the mean marital adjustment score for non-distressed participants was 126.91 ($SD = 14.61$) and for the distressed group was 75.89 ($SD = 17.84$). The three groups differed significantly on sensory pain, $F(2, 252) = 3.34$, $p = .04$, affective pain, $F(2, 252) = 6.19$, $p = .002$, and psychological disability, $F(2, 252) = 6.50$, $p = .002$. Post-hoc tests showed that unmarried participants had higher sensory pain and affective pain than non-distressed married participants ($p = .03$ and $p = .003$, respectively). There was a trend toward higher affective pain in distressed married participants compared with non-distressed married participants ($p = .09$). Both distressed married ($p = .009$) and unmarried participants ($p = .01$) had higher psychological disability than non-distressed married participants. The three groups differed marginally on physical disability, $F(2, 252) = 2.67$, $p = .07$. Although the ANOVA was not significant, non-distressed married participants had somewhat lower physical disability than both distressed married participants ($p = .15$) and unmarried participants ($p = .20$), who were similar to each other.

Next, ANCOVAs were run to examine differences among distressed married, non-distressed married, and unmarried participants in the four health status variables, after controlling for demographic variables and disease severity. The three participant groups continued to differ on affective pain, $F(2, 247) = 4.83$, $p = .009$, with unmarried participants having higher affective pain than non-distressed married participants ($p = .006$), but unmarried and distressed married groups did not differ ($p = .52$). Psychological disability also differed among groups, when controlling for demographics and disease severity, $F(2, 247) = 4.44$, $p = .01$, with unmarried participants having higher psychological disability than non-distressed married participants ($p = .02$); again, unmarried and distressed married groups did not differ ($p = 1.00$). Finally, the three groups did not differ significantly on sensory pain ($p = .12$), or physical disability ($p = .94$), after controlling for demographics and disease severity.

Discussion

Close relationships such as marriage are increasingly recognized as important to health and functioning in RA and other chronic pain conditions.¹⁹ Research, however, has not examined how both marital status and marital adjustment are related to various domains of functioning in RA. In this study, we compared the health status of people with RA as a function of both marital status—that is, married or unmarried—and of level of marital adjustment. We differentiated the married patients into those with distressed or non-distressed marriages to determine the role of marital adjustment on RA health status. In general, we found that although marital status is related to RA health status, the level of adjustment in the marriage is more important to consider than simply whether or not one is married.

Our first hypothesis, that is, that marital adjustment would be associated with better health status, was generally supported. Among married participants, better marital adjustment was associated with less psychological disability and marginally less affective pain after controlling for age, gender, race, education, and disease severity. Thus, married people with RA who have low levels of marital adjustment may be at risk for psychological disability and higher pain relative to those who have high levels of marital adjustment.

Findings from analyses comparing three groups based on marital status and level of marital adjustment generally supported initial hypotheses; non-distressed married participants tended to have better health than both distressed married and unmarried participants. On both affective pain and psychological disability, unmarried participants had worse functioning, but only when compared with married participants who were in non-distressed marriages. In contrast, unmarried participants were similar to participants in distressed marriages on all measures. Although effects on some measures (i.e., sensory pain, physical disability), were attenuated when controlling for confounds, these findings suggest strongly that being married may have benefit for health status when considered in the context of a well-adjusted, or at least not distressed, marriage.³⁴ Research has traditionally noted that being married confers benefits for one's mental and physical health because it provides steady and reliable companionship, emotional intimacy, sexual partnership, and a buffer against ongoing stress.^{8,16} Among those with RA, poorer quality of the marital relationship has been linked to higher pain^{6,40} and psychological distress.^{7,35,38} Conversely, patients with RA who experience positive interpersonal relationships report less pain and psychological distress.¹¹ Consistent with prior findings, this study suggests that the association between marital status and health status depends on the quality of the marriage; only being in a well adjusted marriage is linked with better health status, whereas being in a distressed or low adjustment marriage is similar to being unmarried.

One of the most interesting findings of the current study was that of the strong link between marital adjustment and health status variables tapping into affective functioning (i.e., affective pain and psychological disability). These findings are consistent with prior studies showing that higher marital quality is associated with better mental health in RA^{7,35,38} and that current marital status is strongly associated with depression.¹⁹ That marital quality was related most strongly to psychological disability and affective pain, a construct that assesses pain unpleasantness or emotional qualities of patients' pain, suggests that the marital relationship may play a particularly strong role in influencing patients' *suffering*; that is, the affective or emotional experience of distress associated with their pain.¹⁵ Having a high quality marital relationship may make the disease more emotionally tolerable and thereby reduce the affective components of patients' pain and disability. Conversely, poor marital adjustment or being unmarried may increase stress⁸ or hamper adaptive coping, as well as influence whether patients engage in maladaptive health behaviors or avoid positive health behaviors—including appropriate medical care—all of which could lead to worse pain and suffering.

This study has several limitations. First, the cross-sectional nature of this study precludes determining the direction of these effects. For instance, although it is possible that marital adjustment has an impact on health status, the opposite causal direction is also possible. Having worse pain and mental health can make it difficult for individuals to enter into and remain in a marriage, and may contribute to poor marital adjustment. A bidirectional relationship between marital distress and functioning is most likely.^{3,13} Second, this study did not include non-married individuals in close, committed partnered relationships in the “married group,” and did not assess same sex relationships, and future research should do this. Third, this study did not examine gender differences in how marital status or marital quality might be related to health status. The relatively small number of men, particularly unmarried men, in this sample precluded such analyses. There are a number of studies showing that simply being married may be more protective of health for men than women.^{5,16} Yet, marital quality, rather than just marital status, may be more important to women,¹⁷ and women have been found to have greater physiological reactivity to marital stress than do men.²⁶ Still other studies have found no gender differences in health benefits of marriage.^{37,42} Thus, this complicated picture of the role of gender, marital status, marital quality and health needs further study.

Longitudinal studies could clarify how marital status and marital adjustment affect disease and health status. Research might examine the effects of shifts in marital status (i.e., marriage, separation and divorce, widowhood, and remarriage) as well as changes in marital adjustment on RA severity and functioning. One interesting idea would be to track RA status prior to and following loss of a relationship. Recently, Hughes and Waite¹⁹ found that marital disruption was related to a greater number of chronic conditions, reduced mobility, poorer physical health, and worse depression in a large population sample, with particular evidence for the long-term, cumulative effects of marital disruption on chronic conditions and mobility limitations. Because that study did not focus on patients with chronic pain or RA, it is difficult to know whether these findings would be similar for RA patients. Although those authors did not find that the cause of marital dissolution (i.e., widowhood, divorce) was a key factor in predicting health, it is possible that the nature of a marriage’s dissolution might be differentially related to health status when considering patients with chronic conditions such as RA; for such patients, leaving a poor marriage through divorce might provide health benefits, whereas losing a good marriage due to the death of a spouse could be damaging to health. It would also be valuable to know whether relationship-enhancing psychosocial interventions would lead not only to improvements in marital adjustment but also in pain and disability. Finally, it may also be useful to examine whether smaller fluctuations in marital adjustment stemming from events such as positive or negative interactions would also influence RA severity and functioning.

A key implication of the current study is that simply using marital status as an indicator of the presence of social support may be inadequate; clinicians need to consider the level of adjustment or distress in the relationship. We hope that studies such as the current one will lead to the development of novel psychosocial treatments that adequately address relationship issues for RA patients and their partners. Recently, several studies have shown the potential for spouse-assisted and couples’ interventions to improve disease management and outcomes (e.g., pain, psychological distress) in arthritis populations.^{22,23,24,29} Yet such interventions do not directly target the relationship quality. Based on the current findings, we propose that psychosocial interventions in RA might be improved by including modules that target the marital relationship directly by, for example, providing training in effective communication and behavioral and cognitive skills taken from couples’ therapy (e.g., joint engagement in enjoyable activities). Such interventions might be of particular benefit to RA patients in troubled marriages. We predict that such interventions will not only improve marital adjustment but also improve health and functioning in RA.

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Table 1

Correlational relationships among control and health status variables (N = 255).

	Gender	Race	Education	Disease Severity	Sensory Pain	Affective Pain	Physical Disability	Psych Disability
Age	.01	-.03	-.12	.05	-.32***	-.26***	-.09	-.34***
Gender	-	.08	.01	-.06	.03	-.03	.04	-.04
Race		-	-.04	.07	.19**	.13*	.31***	-.04
Education			-	-.13*	-.05	-.11	-.19**	-.11
Disease Severity				-	.18**	.22***	.47***	.14*
Sensory Pain					-	.65***	.44***	.49***
Affective Pain						-	.42***	.50***
Physical Disability							-	.46***
Psychological Disability								-

* $p < .05$,
** $p < .01$,
*** $p < .001$

Gender was coded 0 = male and 1 = female. Race was coded 1 = Caucasian and 2 = minority. Education was entered as years of education.

Table 2

Zero-order and partial correlations between marital adjustment and health status variables in the married participants (n = 158).

Variable	Zero-order r	Partial r
Sensory Pain	-.25**	-.09
Affective Pain	-.28***	-.15 [†]
Physical Disability	-.25**	-.06
Psychological Disability	-.40***	-.29***

[†] $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$

Note: Partial correlation coefficients controlled for demographics (age, gender, race, and education) and disease severity.

Table 3

Differences among unmarried, total married, distressed married, and non-distressed married participants on control variables and health status variables.

Variable	Total Married (n = 158)	Non-Distressed Married (n = 114)	Distressed Married (n = 44)	Unmarried (n = 97)	F value	χ^2 value
<i>Covariates</i>						
Age	54.89 (12.06)	55.49 (12.12)	53.32 (11.89)	55.85 (12.24)	0.70	-
Education	14.76 (2.58)	14.83 (2.67)	14.58 (2.36)	14.45 (2.47)	0.55	-
Disease Severity n (%)	1.36 (0.77)	1.27 (0.67)	1.59 (0.95)	1.43 (0.85)	2.81	-
Female Gender	118 (74.7%)	85 (74.6%)	33 (75%)	89 (91.8%)	-	11.46***
Caucasian	120 (75.9%)	95 (83.3%)	25 (56.8%)	52 (53.6%)	-	23.83***
<i>Dependent Variables</i>						
Sensory Pain	1.22 (0.72)	1.18 (0.73)	1.33 (0.70)	1.45 (0.77)	3.34*	-
Affective Pain	0.37 (0.41)	0.32 (0.37)	0.49 (0.48)	0.52 (0.49)	6.19**	-
Physical Disability	1.87 (0.67)	1.80 (0.66)	2.03 (0.69)	1.97 (0.63)	2.67	-
Psychological Disability	2.10 (0.67)	2.00 (0.60)	2.36 (0.76)	2.28 (0.71)	6.50**	-

* $p < .05$,

** $p < .01$,

*** $p < .001$

Means are presented for all variables except gender and ethnic status.

Gender was coded 0 = male and 1 = female. Race was coded 1 = Caucasian and 2 = minority. Education was entered as years of education.