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Illness Intrusion and Psychological Adjustment to Rheumatic Diseases: A Social Identity Framework

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Abstract

Objective—To examine the extent to which arthritis intruded upon 4 social roles (spouse, homemaker, parent, worker). In accordance with propositions set forth by social identity theory and the identity-relevant stress hypothesis, we hypothesized that 1) illness intrusion would predict psychological well-being and 2) role importance would moderate the relationship between illness intrusion and psychological adjustment, such that intrusion into highly valued roles would be the most psychologically distressing.

Methods—Participants were recruited from the practices of rheumatologists affiliated with a major urban hospital. A total of 113 individuals (73% women) with diagnosed rheumatic disease completed a mailed questionnaire.

Results—For all 4 roles, illness intrusion was related to decreased psychological well-being. In the worker and parent roles, the effects of illness intrusion on adjustment were moderated by whether respondents valued these particular roles. For example, psychological well-being was lowest among those individuals whose illness intruded greatly upon work and who highly valued their worker role identity.

Conclusion—The findings highlight the advantages of assessing both domain-specific illness intrusion and role importance in predicting psychological well-being among persons with rheumatic diseases. Importantly, results also demonstrate the utility of applying a social identity framework in understanding adjustment processes among persons with chronic illness.

Keywords

Social roles; Identity-relevant stress hypothesis; Illness intrusion; Rheumatic diseases; Psychological adjustment

INTRODUCTION

Although rheumatic diseases pose no immediate life threat, they create a complex set of illness-related stressors, including severe and often unpredictable pain, joint swelling and stiffness, physical disability, and uncertainty about disease progression (1,2). Because of these illness-related stressors, chronic diseases such as rheumatic disorders present a number of threats to the self concept, which can adversely affect psychological well-being (3). Social identity theory and research on illness intrusions are useful for understanding how chronic illness may have these effects. Social identity theory proposes that social roles, such

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as being a parent, worker, or spouse, form the basis for identity (4). Arthritis, however, often impacts upon the ability to perform various activities, including those required for the fulfillment of various social roles. The term “illness intrusions” refers to these disease-caused lifestyle disruptions that “interfere with continued involvements in valued activities and interests” (5). Rheumatoid arthritis (RA), for example, may interfere with various activities of the homemaker role and several other life domains (6 –10). In some cases, rheumatic diseases also lead to complete loss of social roles, as in unemployment due to disability (11,12). Illness intrusions may result directly from disability and pain, other features of illness that limit or impair functioning, or the need to limit or cease activities that worsen symptoms (5). Because intrusions may stem from various aspects of illness other than disability, illness intrusions predict psychological distress even after controlling for functional status (6,9,13).

Social identity theory provides a framework for under-standing why illness intrusions result in psychological distress. Illness intrusions can be conceptualized as stressors that threaten social role identities, which are crucial components of self concept. For a given individual, however, all roles are not equally valued. Some roles are more central to identity than others (4). These central roles have a stronger impact on psychological well-being than do peripheral or less important identities (14). Therefore, events that threaten important aspects of the self should be more disturbing than those that disrupt unimportant identities. This prediction has been termed the “identity-relevant” stress hypothesis (14).

Although studies of community-dwelling adults provide mixed evidence for the identity-relevant stress effect (15–17), the hypothesis is particularly applicable to chronic illness. Specifically, because they intrude upon the ability to perform important roles, rheumatic diseases threaten individuals’ self-concept, ultimately leading to psychological distress. Longitudinal studies of individuals with RA demonstrate, for example, that loss of respondent-rated important life activities predicts depression (9,13,18). In other studies, satisfaction with the ability to perform various role activities predicts psychological adjustment only for those role domains that respondents rated as important (19). Finally, in one study of Latina women, a direct test of the hypothesis revealed that distress increased with greater illness intrusion into important role identities (20). Although this study supported the identity-relevant hypothesis, the effects of role importance and intrusions were not examined across different roles. Therefore, it would be informative to further examine whether the identity-relevant stress hypothesis explains psychological well-being among individuals with rheumatic diseases, as well as the generality of the hypothesis in various role domains (17).

In summary, the identity-relevant stress hypothesis provides a theoretical framework for understanding the effect of illness intrusions on psychological adjustment to rheumatic diseases. In turn, the illness intrusions that characterize rheumatic diseases provide an important context in which to test the generality of the identity-relevant stress hypothesis. The purpose of the present study, therefore, was to 1) test the identity-relevant hypothesis among individuals with rheumatic disease, and 2) extend prior research by testing the hypothesis across 4 different social roles: spouse, homemaker, parent, and worker. The identity-relevant stress hypothesis predicts that role importance moderates the relationship between illness intrusion and psychological adjustment. In other words, the adverse effect of illness intrusions on psychological well-being should be most pronounced for roles that are important to self concept. For roles that are rated as less important, the association between intrusions and well-being will not be as strong.

PATIENTS AND METHODS

Procedure

The sample consisted of 113 individuals diagnosed with rheumatic disease who were participating in a larger study of marital adaptation to rheumatic disease. The rheumatic diseases selected for study were characterized by systemic involvement, arthritis symptoms, and a variable course and prognosis. Study participants were recruited from the practices of 11 rheumatologists affiliated with a major urban hospital for the care of musculoskeletal conditions. Patient records were screened through a multistage process. Eligibility criteria for participation were diagnosed rheumatic disease, currently married, age ≥20 years, ability to read and write English, no history of psychiatric disorder in medical record, and currently under medical care.

A total of 220 patients who met all 6 criteria were sent a letter signed by both their physician and the principal investigator (TAR) inviting them to participate with their spouse in a study of marriage and illness. The letter assured patients that participation was voluntary and confidential, and that they would be remunerated for their time and effort. The questionnaire packets were mailed ~1 week later, with followup inquiries at 2-week intervals for the next month. Couples were paid $40 for their participation upon receipt of completed questionnaires from both husband and wife.

Although 117 patients returned questionnaires (53% response rate), only the 113 couples in which both patients and their spouses returned questionnaires were included in the sample. The response rate was comparable with that of other survey research with couples (21). To examine sample selectivity, patients who did and did not return questionnaires were compared on demographic and other variables obtained from the medical charts, and on physicians' ratings of the patients during their previous visit. There was only 1 statistically significant difference: responders tended to be slightly younger (mean 57 years) than nonresponders (mean 60 years, $t[201] = 2.11$, $P < 0.04$). There were no differences in sex, diagnosis, illness duration, or physicians' ratings of the patients' disease severity or functional disability.

Sample

The majority of respondents had RA (75%). Other diagnoses included polymyalgia rheumatica (7.5%), polymyositis/dermatomyositis (2.5%), mixed connective tissue disease (2.5%), arteritis/vasculitis (1.7%), or other rheumatic diseases (4.2%).

The sample was three-quarters (72.6%) female, reflecting the sex distribution of rheumatic disorders, and was predominantly (84%) white (2.5% African American, 2.5% Latino, 1% other) and middle class (median household income $50,000 –$70,000). Twenty-eight percent of individuals in the sample (n = 32) were employed full time and 8.8% (n = 10) were employed part time; the majority (89.2%) had at least a high school degree. The sample ranged in age from 30 years to 82 years (mean ± SD age 56.7 ± 13.5); 33% of the sample were age ≥65 years. Most respondents (89.4%) had at least 1 child, and 44.2% of the sample had at least 1 child living at home. The sample was 37.5% Catholic, 31.7% Jewish, 23.3% Protestant, and 7.4% other religious background.

Measures

Role importance—Items assessing role importance were derived from prior research on identity theory, as well as from studies of arthritis populations. Study participants indicated on a 5-point scale (0 = not at all, 4 = extremely) how important each of 4 roles (spouse, homemaker, parent, and worker) was to their self concept, which was described as "the way

you think of yourself." These items, which were based on the work of Ethier and Deaux in 1990 (22), are highly correlated with lengthier scales that assess the importance of various social identities to the self concept. The items were also similar to those utilized in Blalock et al's 1992 study (19) of individuals with RA. That study, however, assessed the importance of being able to perform various role-related and other activities (e.g., household and leisure tasks) rather than the importance of role identities to self concept.

Illness intrusions—Respondents were asked to indicate the extent to which their illness affected each of 4 roles: "How much has your illness affected each of these areas of your life? Marriage, household chores, parenting, work/career." Participants rated the level of illness intrusion into each role using a 5-point response format (0 = not at all, 4 = a great deal). The items were based on the illness intrusiveness scale developed by Devins et al (6), although their measure did not assess intrusion into all the roles of interest in the current study. The items showed a high degree of validity in a study of illness intrusiveness in RA (6), and predicted psychological adjustment in a study of Latina women with arthritis (20).

Psychological well-being—The Mental Health Inventory (MHI) (23) is a 38-item self-report instrument that assesses the extent to which respondents experience both positive and negative feelings over the past month. High scores indicate greater psychological well-being. The MHI had good reliability in a study of women with RA (24), and in this sample, internal consistency reliability (Cronbach's alpha) was 0.97.

Functional disability—The functional disability subscale of the Arthritis Impact Measurement Scales (25) is a self-report measure that assesses mobility, dexterity, and the ability to perform a variety of physical tasks. The scale ranges from 0 to 10, with high scores indicating greater disability. The scale has excellent psychometric properties and demonstrated high internal consistency reliability in this sample (α = 0.88).

RESULTS

Inspection of the descriptive data revealed that some participants responded to the parent and worker role importance and illness intrusion variables, even though they had no children or were not currently employed. In analyses of these variables, we included all respondents with valid data, regardless of whether or not they actually held the role. Specifically, analyses of the parent role included 3 respondents who did not have children and analyses of the worker role included 39 respondents who were not employed. These respondents were included because they interpreted the items as personally relevant. If these individuals had been excluded, we would be making a possibly erroneous assumption about the impact of these non-roles on psychological adjustment: that not holding a potentially highly valued role is irrelevant to well-being. Nevertheless, to examine whether results would be similar among all respondents who provided valid data versus only those who held the role being studied, we also tested the identity-relevant stress hypothesis by excluding respondents who were not parents or who were not currently employed.

Descriptive data: role importance, illness intrusion, and sex

The mean role importance and illness intrusion ratings for the full sample, and for men and women separately, are presented in Table 1. Although all 4 roles had relatively high importance ratings, a repeated-measures multivariate analysis of variance revealed significant differences among the roles ($F[3,76] = 11.13$, $P < 0.001$). Post-hoc univariate comparisons indicated that respondents rated the spouse, parent, and worker roles as more important than the homemaker role ($F[1,78] = 19.09$, $P < 0.001$).

Participants reported moderate levels of illness intrusion, although the average level of intrusion varied across roles (multivariate F[3,82] = 15.79, $P < 0.001$). Univariate analyses indicated that illness intruded more into the homemaker and worker roles than the spouse and parent roles (F[1,84] = 32.23, $P < 0.001$).

Despite the small number of men (n = 31) in the sample, we explored possible sex differences in role importance and illness intrusion. The worker role importance rating was higher among men than women (t[86] = 3.72, $P < 0.0001$) (see Table 1). Women, relative to men, reported more intrusion into the spouse role (t[109] = 2.04, $P = 0.04$), homemaker role (t[110] = 2.95, $P = 0.004$), and parent role (t[96] = 2.67, $P = 0.009$). Although these findings suggest sex-linked patterns of illness intrusion and role-based identities, the small number of men in the sample precluded separate within-sex analyses. Instead, sex was used as a covariate in the multiple regression analyses, as further explained below.

Testing the identity-relevant stress hypothesis

The intercorrelations among the study variables are shown in Table 2. As observed in other studies (10,26), women had lower psychological well-being scores relative to men. Greater functional disability was related to increased illness intrusion in each role. The magnitudes of these correlations were moderate, ranging from 0.33 to 0.68 (Table 2), which demonstrates the conceptual distinction between illness intrusion and global physical disability. Functional disability was also related to lower psychological well-being. Therefore, functional disability, as well as sex, was included as a covariate in the multiple regression analyses. This allowed us to test whether illness intrusion predicted psychological well-being even when controlling for functional status.

As anticipated, illness intrusion was related to decreased psychological well-being in all 4 social roles (Table 2). The identity-relevant stress hypothesis predicts that the inverse relationship between illness intrusion and psychological well-being should be greatest for valued roles. In other words, role importance should moderate the relationship between illness intrusion and psychological adjustment: when role importance is high, the correlation between illness intrusion and adjustment should be sizable and inverse. When role importance is low or moderate, the magnitude of the relationship between intrusion and adjustment should be nonsignificant (although still inverse).

Hierarchical multiple regression analyses were conducted separately within each of the 4 social roles, with sex and functional disability entered as covariates. Within each role, illness intrusion and role importance were entered next as a set to examine their unique effects. A product interaction term (illness intrusion × role importance) was entered on the final step of the equation as a test of moderation. A significant interaction term indicates a moderator effect: that the relationship between illness intrusion and psychological adjustment changes depending on role importance. The results of the regression analyses are presented in Tables 3 and 4. (A reviewer suggested that we also run these models with age in each regression equation, as the nature of the roles being studied is likely to vary across the lifespan. When age was entered with sex in the first step of each regression equation, the results remained virtually unchanged from those shown in Tables 3 and 4.) For the parent and worker roles, model 1 included respondents who provided data on the intrusion and importance variables, regardless of whether or not they held the role. In model 2, respondents who did not hold the role were excluded from the analysis.

Both female sex and greater functional disability predicted decreased psychological well-being. For all but the worker role, illness intrusion and role importance explained a significant proportion of the variance in psychological well-being, even after controlling for sex and functional disability. The contribution of illness intrusion and role importance to

psychological well-being varied by social role. With role importance covaried, greater illness intrusion predicted lower well-being for the spouse, homemaker, and parent roles (as indicated by the negative beta coefficients), but not for the worker role. Role importance (with sex, disability, and illness intrusion controlled) was not related to psychological well-being for any roles except for the spouse role, where the association was only marginally significant ($\beta = 0.15$, $P < 0.10$).

As indicated by the significant importance-by-intrusion interaction terms, the identity-relevant stress hypothesis was supported for 2 of the 4 social roles: the parent and worker roles (see model 1). The regression lines for these interactions were plotted by using 1 SD above and below the mean to represent high and low importance scores, respectively (27). Figure 1 illustrates that the nature of the interaction effects differed. As illness intrusion into the parent role increased, psychological well-being declined. This effect, however, was much stronger for individuals who highly valued the parent role (Figure 1A). Among those respondents who highly valued the worker role, greater illness intrusion was associated with decreased psychological well-being (Figure 1B). In contrast, among those who ascribed less importance to the worker role, greater illness intrusion was associated with a slight increase in psychological well-being. These analyses included all respondents who provided data on the importance and intrusion measures, regardless of whether or not they actually held the role. To assess whether the identity-relevant effect occurred only among individuals who actually held the role being studied, we repeated the analyses excluding those respondents who did not hold each role. This resulted in the exclusion of 3 respondents who were not parents and 39 individuals who were not employed, but who had answered questions regarding intrusion into and importance of the parent or work roles. The results of these analyses are shown in Table 4, model 2. Results for the parent role were similar in models 1 and 2. For the worker role, however, the importance-by-intrusion interaction term was no longer significant in model 2, when nonemployed individuals were excluded from the analysis. Although the exclusion of nonworkers in model 2 resulted in a large decrease in the sample size, the coefficient for the importance-by-intrusion interaction ($\beta = -0.26$) indicated that the interaction effect was weak and not significant.

DISCUSSION

Social identity theory offers a useful framework for understanding role-related stressors and psychological adjustment among individuals with rheumatic diseases. The findings of this study provide support for the identity-relevant stress hypothesis concerning the parent and worker roles, but not the spouse or homemaker roles. When illness intruded upon parenting, the greatest declines in psychological well-being occurred among individuals who placed high value on the parent role identity. Among individuals for whom the worker role was an important identity, high illness intrusion in the worker role was related to decreased psychological well-being. In contrast, for those who placed less value on the worker role, greater illness intrusion was related to slight increases in psychological well-being. These findings compliment those of a study of Latina women with arthritis, which found that role importance moderates the effects of illness intrusions on psychological adjustment (20), as well as the observation in a community-based study that the adverse impact of parental role strains on psychological distress is greatest among respondents who highly valued the parent role (17). Combined, these findings support the proposition set forth by identity theory that relative to unimportant identities, disruptions to important identities are more psychologically disturbing (14).

Because this study collected data via a mailed questionnaire, participants were able to respond to items that were personally meaningful. As a result, some participants responded to the parent and worker role identity and intrusion questions even though they did not hold

these roles. We included these data in our tests of the identity-relevant stress hypothesis to avoid making the assumption that psychological well-being is unaffected by not holding a role. For example, it was important to include in the analyses several nonemployed individuals receiving disability compensation who still considered the worker role to be relevant (regardless of the importance rating that they assigned to this role). However, we also tested the identity-relevant stress hypothesis only among individuals who were parents or those who were currently employed. In these analyses, the identity-relevant stress hypothesis was supported only among individuals who were parents. For the worker role, the interaction between role importance and illness intrusion was not significant when the analysis was limited to individuals who were currently employed. This observation suggests that the identity-relevant stress effect might be especially important among individuals who experience stressful life circumstances, such as chronic illness, that prevent them from holding important roles. Because research on identity processes has been conducted predominantly on community samples, these issues have not been explored.

Our findings raise several other important issues and directions for further theoretical work. Despite its intuitive appeal, there is mixed evidence concerning the identity-relevant stress hypothesis in community-based samples (15–17). These studies, however, operationalize identity-relevant events as role stress, or in other words, the extent to which respondents rate various roles (such as parenting and work) as stressful (15–17). This is conceptually distinct from measuring the degree to which a specific stressor (e.g., chronic illness) threatens social roles, as role stress may occur for reasons that are unrelated to identity-threatening events. For example, an individual may report high levels of work role stress because of excessive job demands, but a large workload does not necessarily constitute a threat to that individual's identity as a worker. As demonstrated by our findings, the identity-relevant stress hypothesis might be better tested by measuring direct threats to individuals' self-concept, such as illness intrusions caused by chronic illness. At the same time, our findings underscore the importance of further studying social identities in the context of chronic illness, and exploring the impact on psychological well-being of losing or not being able to hold important identities (such as the work role).

Our results also demonstrated that illness intrusions into the spouse and homemaker roles were related to poorer psychological well-being, but the importance ascribed to those roles did not moderate this relationship. Although additional research is needed to address why the identity-relevant stress hypothesis was not supported for these roles, some tentative hypotheses can be proposed. It is possible that, in the context of rheumatic diseases, the ability to maintain even a minimal level of functioning in some roles may be important in achieving a sense of self worth. Prior findings that women engage in "identity guarding" of the homemaker role (20) provide support for this proposition. Specifically, faced with the potential loss of the homemaker role, women with physical limitations preserved this identity by altering and adjusting household chores. Fulfilling such role activities may be an important part of psychological well-being, especially among persons with limited physical abilities (28). Illness intrusions may compromise quality of life by depriving individuals with chronic illness of these positive rewarding experiences (6). Therefore, the inability to perform even minor tasks associated with certain identities (such as the homemaker and spouse roles), regardless of the level of importance ascribed to the role, may be exceptionally distressing.

It is also possible that structural or contextual factors create barriers to fulfilling certain roles. In these cases, identity processes may play a critical role in modifying the effect of intrusions on adjustment. For example, certain occupations require a high level of physical function or dexterity, creating potential difficulties in maintaining the worker role among persons with rheumatic diseases. Even in cases where occupational physical demands are

not high, however, there may be other structural obstacles against adequately fulfilling the worker role. For example, regardless of the nature of one's occupation, commuting to work via a mass transit system requires physical stamina (e.g., stair climbing, "strap-hanging," or enduring long commutes while standing on crowded buses or subways) (20). Perhaps for these reasons, depending on the nature of the role and structural contexts, identity processes differentially moderate the impact of illness intrusions on psychological adjustment to rheumatic diseases.

In addition to structural barriers to fulfilling various social roles, research on social identities indicates that individuals attach different meanings to their roles, which may involve both positive and negative sentiments. For example, in community studies, respondents express mixed feelings concerning the work and parent roles (17). Although the work role signifies independence and many other meaningful, positive attributes, work also represents lack of time and energy for children and spouses. Similarly, the parent role has numerous positive qualities, but parenting also signifies personal sacrifices, frustration, self doubt, and fears about whether one is doing the "right thing" as a parent. These findings lead to the proposition that role losses adversely impact psychological well-being when the perceived benefits of the identity exceed the perceived costs (17). This proposal is intriguing in light of our finding that, among those respondents for whom the worker identity was not important, illness intrusions were associated with a slight increase in psychological adjustment. A similar pattern did not occur for individuals who placed less importance on the parent role (intrusions were related to worse well-being, but the magnitude of the effect was greatest among those who placed high importance on parenting). It would be interesting to further explore whether this pattern of findings reflects differences in meaning: specifically, that the costs of the worker role exceed the positive qualities attached to this identity, whereas the benefits of the parent role exceed its costs. These issues pose interesting questions for future research on identity processes among individuals with chronic illness.

The sex differences in illness intrusion and role importance observed in this study warrant further research attention. Although some research indicates that women value relationship-based roles more than do men, whereas men place more value on work and achievement roles, other studies find that men and women assign equal value to partner and parenting roles (15). Sex differences in valuing work versus family roles may reflect a variety of factors, including differences in the extent to which men and women engage in these roles and sex-role ideology (29).

More research is also needed on the role stress created by illness intrusions among persons with chronic illness, and the possible protective effects of multiple roles on psychological well-being. In community samples, for example, having family versus work role identities, as well as the quality of these roles, differentially affect psychological well-being for men and women (29). Relatively less research on these issues has focused on individuals with chronic illness.

Our findings also raise a number of conceptual and measurement issues. Even after controlling for physical disability, illness intrusion was associated with psychological well-being. Similar findings have been reported in other studies of persons with RA (6). Despite the same disability level, rheumatic diseases may affect social roles differently. This has also been documented in research showing that functional disability does not consistently predict activity loss across various life domains (9,13). Combined, the findings of these studies illustrate that illness intrusion measures provide more information than do global pain or disability measures about how rheumatic diseases affect specific life domains.

Although the current study contributes to the scarce literature on identity and self concept issues among individuals with chronic conditions such as rheumatic diseases, some limitations should be acknowledged. First, the cross-sectional study design does not allow for inferences regarding causality. An underlying assumption of this study is that illness intrusions decrease psychological well-being. It is possible, however, that the response to intrusion is influenced by the degree of psychological distress. Second, with regard to demographic characteristics, the sample was predominantly white, middle class, and female, limiting generalizations of study findings to other populations. Third, we examined a limited number of roles, and all respondents in the sample held the role of spouse. It would be important to further explore identity processes and the impact of illness on other roles (e.g., volunteer, church member). Finally, although our measures of illness intrusion and role importance were used and validated in other samples of individuals with arthritis, it would be beneficial to develop more extensive, multiple-item measures of these constructs. This would allow for a more adequate exploration of the potentially multiple ways in which illness may intrude upon various role identities.

The present findings have several implications. First, measuring illness intrusion into particular roles more accurately portrays the impact of rheumatic diseases in specific life domains than does assessment of global functional disability. Therefore, in studies dealing with quality of life issues, domain-specific measures can more precisely tap the phenomenology of illness, or in other words, illness as the person experiences it. Second, identity processes play a role in psychological adjustment to illness. Illness intrusions caused by chronic illness are stressors that can threaten important aspects of self concept. Third, further research should examine the possible mediating mechanisms involved in these processes and how they contribute to psychological adjustment. This information will help contribute to psychosocial intervention programs that increase quality of life for individuals living with chronic illness. As some researchers have suggested (18), helping persons with arthritis maintain or replace valued activities may help to offset psychological distress. The findings of this study provide further support for this recommendation.

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References

1. Hannan, MT. Epidemiology of rheumatic diseases. In: Robbins, L.; Burckhardt, CS.; Hannan, MT.; DeHoratius, RJ., editors. Clinical care in the rheumatic diseases. 2. Atlanta (GA): American College of Rheumatology; 2001. p. 9-14.
2. Newman, S.; Fitzpatrick, R.; Revenson, TA.; Skevington, S.; Williams, G. Understanding rheumatoid arthritis. London: Routledge, Kegan, Paul; 1996.
3. Charmaz, K. Experiencing chronic illness. In: Albrecht, GL.; Fitzpatrick, R.; Scrimshaw, S., editors. The handbook of social studies in health and medicine. London: Sage; 2000. p. 277-92.
4. Thoits, PA. Me's and we's: forms and functions of social identities. In: Ashmore, RD.; Jussim, L., editors. Self and identity: fundamental issues. Vol. 1. New York: Oxford University Press; 1997. p. 106-33.
5. Devins, GM. Enhancing personal control and minimizing illness intrusiveness. In: Kutner, NG.; Cardenas, DD.; Bower, JD., editors. Maximizing rehabilitation in chronic renal disease. New York: PMA Publishing; 1989.

6. Devins GM, Edworthy SM, Guthrie NG, Martin L. Illness intrusiveness in rheumatoid arthrits: differential impact on depressive symptoms over the adult lifespan. J Rheumatol. 1992; 19:709–15. [PubMed: 1613699]
7. Reisine ST, Goodenow C, Grady KE. The impact of rheumatoid arthritis on the homemaker. Soc Sci Med. 1987; 25:89–95. [PubMed: 3616700]
8. Katz PP. The impact of rheumatoid arthritis on life activities. Arthritis Care Res. 1995; 8:272–8. [PubMed: 8605266]
9. Katz PP, Yelin EH. Activity loss and the onset of depressive symptoms: do some activities matter more than others? Arthritis Rheum. 2001; 44:1194–202. [PubMed: 11352254]
10. Revenson, TA.; Abraido-Lanza, AF.; Majerovitz, SD.; Jordan, C. Couples' coping with chronic illness: what's gender got to do with it?. In: Revenson, TA.; Kayser, K.; Bodenmann, G., editors. Emerging perspectives on couples' coping with stress. Washington (DC): American Psychological Association; 2005. p. 137-56.
11. Verstappen SM, Bijlsma JW, Verkleij H, Buskens E, Blaauw AA, ter Borg EJ, et al. the Utrecht Rheumatoid Arthritis Cohort Study Group. Overview of work disability in rheumatoid arthritis patients as observed in cross-sectional and longitudinal surveys. Arthritis Rheum. 2004; 51:488–97. [PubMed: 15188338]
12. Yelin EH. Musculoskeletal conditions and employment. Arthritis Care Res. 1995; 8:311–7. [PubMed: 8605272]
13. Katz PP, Yelin EH. The development of depressive symptoms among women with rheumatoid arthritis: the role of function. Arthritis Rheum. 1995; 38:49–56. [PubMed: 7818571]
14. Thoits PA. On merging identity theory and stress research. Soc Psychol Q. 1991; 54:101–12.
15. Thoits PA. Identity structures and psychological well-being: gender and marital status comparisons. Soc Psychol Q. 1992; 55:236–56.
16. Thoits PA. Identity-relevant events and psychological symptoms: a cautionary tale. J Health Soc Behav. 1995; 36:72–82. [PubMed: 7738329]
17. Simon RW. Parental role strains, salience of parental identity and gender differences in psychological distress. J Health Soc Behav. 1992; 33:25–35. [PubMed: 1619256]
18. Katz PP, Yelin EH. Life activities of persons with rheumatoid arthritis with and without depressive symptoms. Arthritis Care Res. 1994; 7:69–77. [PubMed: 7857996]
19. Blalock SJ, DeVellis BM, DeVellis RF, Giorgino KB, Sauter SV, Jordan JM, et al. Psychological well-being among people with recently diagnosed rheumatoid arthritis: do self-perceptions of abilities make a difference? Arthritis Rheum. 1992; 35:1267–72. [PubMed: 1445441]
20. Abraido-Lanza AF. Latinas with arthritis: effects of illness, role identity, and competence on psychological well-being. Am J Community Psychol. 1997; 25:601–27. [PubMed: 9485576]
21. Manne SL, Alfieri T, Taylor KL, Dougherty J. Spousal negative responses to cancer patients: the role of social restriction, spouse mood, and relationship satisfaction. J Consult Clin Psychol. 1999; 67:352–61. [PubMed: 10369055]
22. Ethier K, Deaux K. Hispanics in ivy: assessing identity and perceived threat. Sex Roles. 1990; 22:427–40.
23. Veit CT, Ware JE Jr. The structure of psychological distress and well-being in general populations. J Consult Clin Psychol. 1983; 51:730–42. [PubMed: 6630688]
24. Manne SL, Zautra AJ. Spouse criticism and support: their association with coping and psychological adjustment among women with rheumatoid arthritis. J Pers Soc Psychol. 1989; 56:608–17. [PubMed: 2709309]
25. Mason JH, Anderson JJ, Meenan RF. A model of health status for rheumatoid arthritis: a factor analysis of the Arthritis Impact Measurement Scales. Arthritis Rheum. 1988; 31:714–20. [PubMed: 3382446]
26. DeVellis, BM.; Revenson, TA.; Blalock, S. Arthritis and autoimmune diseases. In: Gallant, S.; Keita, GP.; Royak-Schaler, R., editors. Health care for women: psychological, social and behavioral issues. Washington (DC): American Psychological Association; 1997. p. 333-47.
27. Cohen, J.; Cohen, P. Applied multiple regression/correlational analysis for the behavioral sciences. 2. Hillside (NJ): Erlbaum; 1983.

28. Rejeski WJ, Martin KA, Miller ME, Ettinger WH Jr, Rapp S. Perceived importance and satisfaction with physical function in patients with knee osteoarthritis. Ann Behav Med. 1998; 20:141–8. [PubMed: 9989320]

29. Barnett RC, Hyde JS. Women, men, work, and family: an expansionist theory. Am Psychol. 2001; 56:781–96. [PubMed: 11675985]

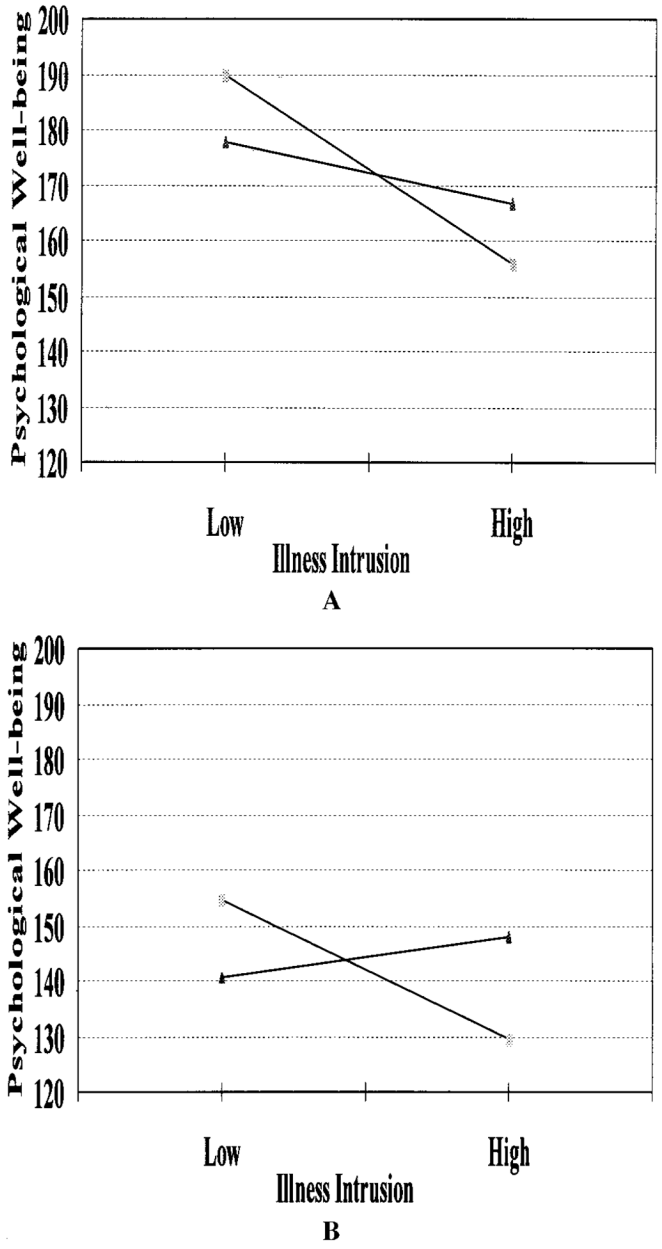

Figure 1.
Interaction of role importance by illness intrusion for **A,** the parent role and **B,** the worker role. ▽ = low importance; □ = high importance.

Table 1

Mean levels of importance and illness intrusion in the spouse, parent, homemaker, and worker roles*

	Importance			Intrusion		
Role	**Full sample**	**Men**	**Women**	**Full sample**	**Men**	**Women**
Spouse	2.90 ± 1.03	2.83 ± 0.87	2.93 ± 1.09	1.49 ± 1.34	1.07 ± 1.23†	1.64 ± 1.35†
Homemaker	2.57 ± 1.18	2.36 ± 1.28	2.64 ± 1.14	2.16 ± 1.26	1.62 ± 1.36†	2.37 ± 1.16†
Parent	3.21 ± 0.92	3.28 ± 0.88	3.18 ± 0.93	1.14 ± 1.31	0.69 ± 0.93†	1.33 ± 1.40†
Worker	2.81 ± 1.23	3.34 ± 0.67†	2.54 ± 1.36†	1.99 ± 1.43	1.79 ± 1.32	2.08 ± 1.48

*Values are the mean ± SD. Importance and intrusion items were rated on a scale of 0 to 4.

†Men versus women mean difference is significant at $P \leq 0.05$.

Table 2

Intercorrelations between physical function, illness intrusion, role importance, and psychological well-being *

	1	2	3	4	5	6	7	8	9	10
1. Sex										
2. Physical function	0.13									
Illness intrusion into										
3. Marriage	0.19†	0.33‡								
4. Parenting	0.23†	0.42‡	0.63‡							
5. Homemaking	0.27‡	0.68‡	0.57‡	0.52‡						
6. Work	0.09	0.56‡	0.52‡	0.41‡	0.63‡					
Importance of										
7. Spouse role	0.04	0.13	0.00	−0.04	0.17	0.17				
8. Parent role	−0.04	0.03	0.09	0.04	0.14	0.10	0.58†			
9. Homemaker role	0.11	0.25‡	−0.05	0.06	0.20†	0.27†	0.51‡	0.36‡		
10. Worker role	−0.31‡	−0.10	0.07	0.03	−0.11	−0.07	0.10	0.10	0.08	
Outcome measure										
11. Psychological well-being	−0.25‡	−0.36‡	−0.46‡	−0.48‡	−0.42‡	−0.26†	0.11	−0.03	−0.03	−0.03

* Sex coded as male = 0, female = 1.

† $P > 0.05$.

‡ $P > 0.01$.

Table 3

Hierarchical multiple regression of role importance, illness intrusion, and importance-by-intrusion interaction on psychological well-being: spouse and homemaker roles*

	β	R^2	ΔR^2	*P*	Total equation
Spouse role					$R^2 = 0.30$, $F[5,96] = 8.13$†
Step 1					
Sex	−0.25‡	0.06	0.06	<0.01	
Step 2					
Physical function	−0.32†	0.16	0.10	<0.001	
Step 3					
Importance	0.15§				
Illness intrusion	−0.35†	0.30	0.13	<0.001	
Step 4					
Importance × intrusion	−0.07	0.30	0.00	NS	
Homemaker role					$R^2 = 0.22$, $F[5,93] = 5.27$†
Step 1					
Sex	−0.25‡	0.06	0.06	<0.01	
Step 2					
Physical function	−0.32†	0.16	0.10	<0.001	
Step 3					
Importance	0.08				
Illness intrusion	−0.31‡	0.21	0.05	<0.05	
Step 4					
Importance × intrusion	0.24	0.22	0.01	NS	

*For the sex variable, 0 = male, 1 = female. Betas correspond to values at each step. NS = not significant.

†$P < 0.001$.

‡$P < 0.01$.

§$P < 0.10$.

Table 4

Hierarchical multiple regression of role importance, illness intrusion, and importance-by-intrusion interaction on psychological well-being: parent and worker roles*

	Model 1					Model 2				
	β	**R^2**	**ΔR^2**	***P***	**Total equation**	***β***	**R^2**	**ΔR^2**	***P***	**Total equation**
Parent role					$R^2 = 0.32$, $F[5,82] = 7.76^{\dagger}$					$R^2 = 0.37$, $F[5,79] = 9.39^{\dagger}$
Step 1										
Sex	$-0.25^{\ddagger}$	0.06	0.06	<0.05		$-0.30^{\ddagger}$	0.09	0.09	<0.01	
Step 2										
Physical function	$-0.32^{\S}$	0.15	0.09	<0.01		$-0.38^{\dagger}$	0.23	0.14	<0.001	
Step 3										
Importance	−0.02					−0.10				
Illness intrusion	$-0.37^{\dagger}$	0.26	0.11	<0.001		$-0.36^{\S}$	0.34	0.12	<0.001	
Step 4										
Importance × intrusion	$-0.72^{\S}$	0.32	0.05	<0.01		$-0.63^{\ddagger}$	0.37	0.03	<0.05	
Worker role					$R^2 = 0.24$, $F[5,71] = 4.53^{\dagger}$					$R^2 = 0.47$, $F[5,35] = 5.23^{\dagger}$
Step 1										
Sex	$-0.25^{\ddagger}$	0.06	0.06	<0.05		$-0.41^{\ddagger}$	0.17	0.17	<0.05	
Step 2										
Physical function	$-0.32^{\S}$	0.16	0.10	<0.01		$-0.56^{\dagger}$	0.46	0.30	<0.001	
Step 3										
Importance	−0.13					0.03				
Illness intrusion	−0.10	0.18	0.02	NS		0.02	0.46	0.00	NS	
Step 4										
Importance × intrusion	$-0.77^{\ddagger}$	0.24	0.06	<0.05		−0.26	0.47	0.00	NS	

*For the sex variable, 0 = male, 1 = female. Betas correspond to values at each step. Model 1 includes participants who responded to the parent or worker role importance and illness intrusion variables, regardless of whether or not they held the role. Model 2 includes only respondents who were parents or who were currently employed. NS = not significant.

$^{\dagger}P < 0.001$.

$^{\ddagger}P < 0.05$.

$^{\S}p < 0.01$.