Does God Determine Your Health? The God Locus of Health Control Scale

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Although perceptions of internal control have been related to physical and psychosocial outcomes in chronic illness, less attention has been paid to perceptions of external sources of control and their implications for adaptation. One reason for this has been the dearth of adequate measures for assessing specific external control constructs. The God Locus of Health Control (GLHC) scale was developed to assess the extent of an individual's belief that God controls his or her health status. The GLHC was designed as an adjunct to the widely used Multidimensional Health Locus of Control (MHLC) scales. Initial studies of the psychometric properties of the GLHC scale in samples of persons with two rheumatic diseases, rheumatoid arthritis and systemic sclerosis, provide evidence of the scale's reliability and validity.

KEY WORDS: control; religion; health; illness; measurement.

The positive and negative consequences of seeking and gaining control over life events has been systematically studied by psychologists since the late 1960s (Shapiro, Schwartz, & Astin, 1996). Control-related cognitions have been examined in numerous contexts, including both mental and physical health and illness. Within the context of physical illness, substantial literature exists supporting the importance of health-related control beliefs to both physical and psychological adjustment. A sense of personal control has been related to positive outcome in individuals with physical illness; generally, a large body of research has shown that those who believe that there are ways of exercising control over their illness or related circumstances

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have more positive psychological and physical adaptation than those who do not (Affleck, Tennen, Pfeiffer, & Fifield, 1987; Shapiro et al., 1996).

Many of these studies have focused primarily on perceptions of internal control in relation to adaptation to illness, despite the long-established validity of conceptualizing control as multidimensional (Shapiro et al., 1996; Wallston, 1989). Shapiro et al. (1996) suggest that, in particular, beliefs and/or cognitions that focus on external sources or agents of control have received far less attention. One notable exception to this is the measurement approach underlying the Multidimensional Health Locus of Control (MHLC) scales developed by Wallston and colleagues (Wallston, Wallston, & DeVellis, 1978). The MHLC originally contained three subscales describing various types of control-related cognitions an individual may have about his or her current state of health. These were: Internal Health Locus of Control (IHLC); Powerful Others Health Locus of Control (PHLC); and Chance Health Locus of Control (CHLC). The two original versions of the MHLC (Forms A and B) deal with general health status, whereas a third version, Form C (Wallston, Stein, & Smith, 1994) assesses control-related cognitions about a specific disease state. The psychometric properties and practical utility of the MHLC scales have been established in hundreds of studies since the 1970s (see Wallston, 1989), including a number of studies of adaptation to chronic illness. Among the more important findings emerging from this literature is that internal and external control perceptions are differentially related to physical and psychosocial outcomes in chronic illness (Wallston, 1989). This underscores the need for a more fine-grained analysis of people's cognitions about various external sources of control over illness.

One external source of health control that has not received sufficient attention is that of religion or "Supreme Beings" such as God. Based on surveys of adults in the United States, 94% believe in God, 90% pray to God, and a majority actively practice their religion (Park & Cohen, 1992). It seems likely that religion may be a source of control-related cognitions. However, to date, religiously based health-related control beliefs have received little attention. One central reason for this lack of research study has been a dearth of measurement tools. In 1996, an intial effort was made to expand the MHLC to include a construct termed "God control" (Welton, Adkins, Ingle, & Dixon, 1996). Welton et al. wrote six new items for insertion into the general (non–condition-specific) health form of the MHLC, modified the response format, and administered the new scale to two samples of healthy undergraduates. The new scale was internally consistent, positively related to religiosity, and generally uncorrelated with the other MHLC subscales. God health-control beliefs predicted general health habits in one of the two undergraduate samples, but were unrelated in the other.

The modification of the general form of the MHLC made by Welton et al. is a useful step in the development of tools for assessing religiously based health control beliefs. However, to date, there has still been no scale available to assess this construct in people who have acute or chronic health conditions. The purpose of this paper is to describe expansion of the MHLC Form C (specific disease state) to include a new subscale: God Locus of Health Control (GLHC). This scale is designed to assess the extent of the belief that God exerts control over one's current

disease state[9]. The GLHC consists of six items and is similar in format to the other MHLC scales. The purpose of this paper is to introduce the GLHC and present psychometric data drawn from three samples of individuals with two different rheumatic diseases, specifically rheumatoid arthritis (RA) and systemic sclerosis (SSc).

METHOD

Participants

Rheumatoid Arthritis

Two independent samples of persons with a confirmed diagnosis of RA participated in this study. RA is a systemic autoimmune disease that involves the chronic and painful inflammation of the joints. However, the pain varies greatly over time, and for many the disease is characterized by unpredictable periods of remission and exacerbation; RA can be quiescent and then "flare" without warning into a bout of intense pain (Brown, Wallston, & Nicassio, 1989; Skevington, 1987). When flares are frequent or of long duration, the results often include disfigurement, fatigue, and loss of functional ability. The net result is that more than 50% of RA patients suffer significant work disability within 5–10 years of disease onset (Canosco, 1997; Yelin, Meenan, Nevitt, & Epstein, 1980). There is no cure for RA, and most treatments are only marginally and temporarily effective. However, although associated with significant side effects, some disease-modifying agents, such as methotrexate, have proved to be effective in slowing down or sometimes even reversing the progression of the disease (Canosco, 1997).

The first sample (RA-1; $N = 145$) was initially recruited in 1984 and participants were in their 11th wave of data collection at the time they were administered the GLHC items. Seventy-five percent of RA-1 participants were women, which is representative of the gender ratio in the disease population (Callahan & Rao, 1996; Canosco, 1997; Schumacher, Klippel, & Koopman, 1993). At the time they filled out the GLHC, they had been diagnosed with RA, on average, for approximately 12 years and averaged slightly more than 60 years of age. Ninety-five percent of RA-1 participants were European American. The second sample of persons with RA (RA-2; $N = 163$), was recruited in 1992. Participants in RA-2 were in their second wave of data collection when the GLHC was administered. Seventy-one percent of RA-2 participants were women, and 91% were European American. At wave two, participants in RA-2 averaged 56 years of age and had been diagnosed with RA for an average of 4 years. The majority of participants in both RA-1 and RA-2 lived in the middle Tennessee area.

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[9] There is also a general health-related version of the GLHC that was developed independently of Welton et al. (1996) that is currently undergoing testing. This general health-related version replaces the world "condition" in each item in Table I with the word "health."

Systemic Sclerosis

This sample consisted of 93 individuals with confirmed diagnoses of SSc. SSc is a severe, chronic, and progressive rheumatic disease characterized by the thickening and hardening of the skin, which may sometimes extend to other organ systems. Progression of the disease is unpredictable, and only palliative treatment is available. Significant mortality is associated with the disease if the skin thickening affects the trunk (Medsger & Steen, 1996).

Participants were recruited from patient lists at the medical centers of the University of California, Los Angeles, and the University of California, San Diego. They averaged 50 years of age and had been diagnosed with SSc for an average of 5 years. Eighty-six percent of participants were women, which is representative of the gender ratio in the disease population (ratio of women to men is approximately 4:1; Steen, 1990; Steen & Medsger, 1990). Sixty-nine percent of participants were European American, 12% were Hispanic American, 8% were African American, 4% were Asian American, and 7% represented other groups.

Measures

Demographics

For both groups, demographic information was collected via self-report questionnaire. Information collected included date of birth, sex, marital status, number and age of children, occupation, highest level of education completed, annual family income, and ethnic background. The participants with RA responded to a three-item measure assessing how important their religion was to them (coefficient alpha = .87 {RA-1} and .85 {RA-2}). The SSc participants were asked for their religious affiliation and whether they actively practiced their religion.

Perceptions of Control

For all participants, the 18-item Form C of the MHLC scales was used. This self-report instrument assesses the extent to which participants believe their condition (i.e., RA or SSc) is due to: (1) their own behavior (internality); (2) the behavior of doctors; (3) the behavior of other people, not including doctors; and (4) chance, luck, or fate. Form C of the MHLC has been thoroughly tested and has been shown to have adequate psychometric properties (Wallston et al., 1994). Subscales from Form C predictably relate to changes resulting from an intervention program (Sinclair et al., 1998), to other measures of perceived control (e.g., arthritis helplessness), and to health-related criteria such as pain, functional impairment, and depression (Wallston et al., 1994).

All participants also completed the newly developed God Locus of Health Control (GLHC) scale. The GLHC scale represents a new dimension of the MHLC scales and shares the same format. The six items constituting the GLHC scale can be found in Table I. The GLHC scale can be used alone or incorporated within the MHLC scales, as was done in these studies. Reliability and validity data for the GLHC is presented in the Results section.

Table I. God Locus of Health Control (GLHC) Items

If my {condition} worsens, it is up to God to determine whether I will feel better again.
Most things that affect my {condition} happen because of God.
God is directly responsible for my {condition} getting better or worse.
Whatever happens to my {condition} is God's will.
Whether or not my {condition} improves is up to God.
God is in control of my {condition}.

Note. To make the GLHC condition-specific, replace the word "condition" in each item with the actual condition being studied (e.g., "arthritis").

Coping

Different measures of coping were administered to the RA and SSc samples. The RA participants completed the Vanderbilt Multidimensional Pain Coping Inventory (VMPCI; Smith, Wallston, Dwyer, & Dowdy, 1997) along with a shortened version of the Vanderbilt Pain Management Inventory (VPMI; Brown & Nicassio, 1987). The VMPCI contains a 4-item subscale assessing the use of religion (alpha = .93 {RA-1} and .90 {RA-2}) along with 10 other subscales (e.g., planful problem solving, positive reappraisal, distraction, wishful thinking, disengagement). The shortened VPMI consists of a five-item subscale assessing active pain coping and a six-item subscale assessing passive pain coping. With the exception of two VMPCI subscales (stoicism and self-blame), all of the pain-coping subscales had acceptable levels of reliability (Smith et al., 1997). Although the validity of the VPMI has been well established (Brown & Nicassio, 1987), Smith et al. (1997) report that the VMPCI has incremental validity over the VPMI in predicting impairment, physical functioning, and psychological well-being.

The Revised Ways of Coping Checklist (WCCL-R; Vitaliano et al., 1985; Vitaliano, 1991) was administered to the SSc sample. The WCCL-R is a 57-item self-report instrument that assesses cognitive and behavioral coping within the context of an identified stressor. For this study, participants used a 4-point scale to indicate the extent to which they used each of the described strategies to cope with their medical condition. The WCCL-R yields a three-item subscale assessing the use of religious coping (alpha = .71) plus seven other coping subscales (problem-focused, wishful thinking, seeking social support, avoidance, self-blame, blaming others, and counting one's blessings). The subscales have acceptable reliability and concurrent and construct validity, and low interscale correlations. For the present sample internal consistencies for the subscales ranged from .67 to .84. The WCCL-R has been validated for use with SSc in a previous study (Malcarne & Greenbergs, 1996).

Psychosocial Outcomes

As with coping, different measures of psychosocial outcomes were administered to the RA and SSc samples. Both yield validated negative affectivity constructs. Positive and negative affect in the RA samples were assessed with the trait version of the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The positive affect subscale had internal consistencies of .89 and .87 for RA-1 and RA-2 respectively; the negative affect subscale had internal consistencies

of .87 and .89 for RA-1 and RA-2, respectively. The two subscales were slightly negatively correlated with one another (*r*'s = −.28 {RA-1} and −.19 {RA-2}). The PANAS has been validated for use with RA (Zautra et al., 1995).

For persons with SSc, psychosocial outcome was assessed using the Psychological Distress subscale of the Psychosocial Adjustment to Illness Scale (PAIS; Derogatis, 1990). The PAIS is a 46-item self-report measure that yields seven subscales; one of these, the Psychological Distress subscale, assesses disease-related negative affectivity. The reliability and validity of the PAIS and its subscales has been established in many chronic disease populations (Derogatis & Derogatis, 1990), more recently including SSc (Malcarne & Greenbergs, 1996; Moser, Clements, Brecht, & Weiner, 1993). In the present sample, coefficient alpha for the Psychological Distress subscale was .78.

Self-Reports of Physical Functioning and Disability

The RA samples were administered the shortened 10-item version of physical functional impairment (Wallston, Brown, Stein, & Dobbins, 1989) from the Arthritis Impact Measurement Scales (AIMS; Meenan, Gertman, & Mason, 1984). Two items assess impairment in each of five domains: mobility, physical activity, dexterity, household activities, and activities of daily living. Each of the subscales is transformed into *z*-scores and the five *z*-scores are summed. The reliability and validity of this subjective measure of impairment has been well established (Wallston et al., 1989).

The SSc sample was administered the Health Assessment Questionnaire (HAQ; Fries, Spitz, & Young, 1982), which has a subscale assessing disease-related disability. The Disability Index of this self-report measure consists of a list of 20 activities divided into 8 categories (dressing, arising, eating, walking, hygiene, reach, grip, and activities). Patients are asked to rate the degree of difficulty they currently experience when performing each of these activities. Items are summed to yield an overall disability score, with higher scores reflecting greater disability. The HAQ has been shown to be a valid measure of physical disability in patients with SSc (Malcarne & Greenbergs, 1996; Poole & Steen, 1991; Poole et al., 1995). For the present SSc sample, internal consistency of the Disability Index was .92.

Objective Indicators of Physical Outcomes

Different objective indicators of physical outcomes were used in the RA and SSc studies. (No objective indicators are available for participants in RA-1.) For the RA-2 sample, during home visits that occurred within 6 months of completing the questionnaire, 28 joints were examined by a trained examiner for evidence of swelling, tenderness, and limited motion. The joints assessed included: the shoulders, elbows, wrists, metacarpalphalangeals (i.e., the knuckles), knees, and 10 proximal interphalangeal (i.e., middle) joints of the fingers. Each joint was scored as either normal or abnormal, following the procedure developed by Fuchs and colleagues (Fuchs, Brooks, Callahan, & Pincus, 1989). Both the left and right sides were examined, and their scores were combined into a single index. The reliability and validity of these assessments of disease activity in persons with RA have been demonstrated (Fuchs et al., 1989).

For the SSc participants, disease severity was assessed using the modified Rodnan skin score. This measures the degree and extent of cutaneous skin thickening by physical examination and is considered a valid measure of disease severity (Clements et al., 1993, 1995). The modified Rodnan method consists of clinical palpation assessing skin thickness in 17 body surface areas. Ratings of skin thickness are made on a 0–3 scale (normal, mild, moderate, severe). The modified Rodnan skin score is calculated by summing the scores for all 17 body areas; thus, scores range from 0–51, with higher scores reflecting more severe disease. The modified Rodnan skin scores have been shown to have good inter- and intra-observer reliability (Clements et al., 1993, 1995). For this study, internal consistency of the modified Rodnan skin score was .92.

RESULTS

GLHC Scores

The mean scores on the GLHC subscale were 16.1 (SD = 8.4) and 17.2 (SD = 8.5) for the RA samples and 16.5 (SD = 9.6) for the SSc sample. This indicates that, on average, subjects moderately or slightly disagreed with statements that God exercises control over their disease. There was, however, considerable within-sample variation. Scores ranged from 6 to 36, and were slightly positively skewed. The GLHC was internally consistent for all three samples (coefficient alphas = .91 {RA-1}, .87 {RA-2}, and .94 {SSc}).

Demographics

There was no significant relationship between GLHC scores and age for either of the two RA samples; GLHC scores were significantly negative correlated with age for the SSc subjects (r = −.26, p = .01). GLHC was significantly negatively correlated with level of education for the SSc sample (r = −.22, p < .05) and for RA-1 (r = −.30, p < .01) but not for RA-2 (r = .05, p > .05). No significant gender differences were found for either sample. Income was not correlated with GLHC scores for RA-2 (no income information was available for RA-1), and there were no significant differences in GLHC scores across income levels for the SSc sample. In both RA samples there was a correlation between GLHC and the importance of religion (RA-1: r = .32, p < .01; RA-2: r = .29, p = .001). Analysis of variance with the SSc data revealed that there was a significant main effect for practicing religion {F(2,89) = 12.1, p < .0001}, with those who were actively practicing religion scoring higher on the GLHC (M = 19.38) than those who were not (M = 13.14).

Perceptions of Control

For the RA samples, the GLHC was significantly (and positively) correlated with two of the MHLC subscales, Other People (r = .22, p < .05 and r = .20, p < .05) and Chance (r = .47, p < .001 and r = .44, p < .001), and independent

of the Internality or Doctors subscales. Similarly, the GLHC was significantly correlated with Other People ($r = .22, p < .05$) in the SSc sample and was uncorrelated with Internality and Doctors; the pattern differed in that for SSc subjects GLHC was not significantly correlated with Chance.

Coping

In both RA samples, GLHC was unrelated to active pain coping, but positively correlated with passive pain coping ($r = .19, p < .05$ for RA-1; $r = .17, p < .05$ for RA-2). The only other significant correlation that replicated across the RA samples was for turning to religion, a subscale of the VMPCI ($r = .47, p < .01$ for RA-1; $r = .42, p < .001$ for RA-2). For the SSc sample, the only significant correlation was between the GLHC and the religiosity subscale of the WCCL-R ($r = .49, p < .001$). None of the correlations between the GLHC and the other seven WCCL-R subscales were significant. The findings from all three samples suggest that people who attribute more health control to God also engage in greater use of religious coping strategies, both for their pain and their disease.

Psychosocial Outcomes

For the first RA sample, GLHC was positively correlated with negative affect ($r = .31, p < .01$) and negatively correlated with positive affect ($r = -.18, p < .05$), but there were no significant correlations with either PANAS subscale for the second RA sample. In the SSc sample, GLHC was positively correlated with negative affect ($r = .28, p < .01$).

Self-Reports of Functioning and Disability

In neither RA sample were GLHC scores correlated with the index of physical functional impairment. Similarly, for the SSc subjects, GLHC was not significantly correlated with the HAQ disability index.

Objective Indicators of Disease Severity

GLHC scores were uncorrelated with any of the joint count measures administered to Ss in RA-2. They were, however, positively correlated with grip strength ($r = .18, p < .05$). GLHC was not significantly correlated with the modified Rodnan skin score for the SSc sample.

DISCUSSION

Although perceptions of internal control have been shown to have important relationships to outcomes in chronic illness, less attention has been paid to perceptions of external sources of control. The GLHC scale was developed as an adjunct to and expansion of the widely used MHLC scales and was designed to assess

individuals' cognitions about the degree to which God is a source of control over their personal health and illness. The results presented here, drawn from two samples of persons with RA and one sample of persons with SSc, suggest that the psychometric properties of the GLHC scale are sound. Internal consistency estimates for the scale were very acceptable, ranging from .87 to .94. GLHC scores were generally uncorrelated with demographic variables, with the exception of education level, which showed small but significant correlations with GLHC in two of the three samples. Here, higher education was related to weaker endorsement of God-related control beliefs. This finding is consistent with surveys showing that people who are more highly educated tend to be less religious (Hoffman & Miller, 1997).

Several measures of religious orientation/activity were related to the GLHC, with all results fitting expected patterns. People who rated religion as more important or who reported being more active in their practice of religion scored higher on the GLHC. For all three samples, people who described using more religious coping scored higher on the GLHC.

The GLHC was also examined in relation to all of the other MHLC scales. The pattern of relationships between the GLHC and the MHLC scales was similar for the RA and SSc samples. For all three samples, GLHC was uncorrelated with both Internality and Doctors. Also, for all three samples, GLHC was significantly positively correlated with Other People, suggesting that individuals who endorse stronger beliefs in God control are more likely to also perceive sources of control in the nonprofessional people in their lives. The magnitude of these correlations was quite small (ranging from .20 to .22), suggesting adequate independence of these two scales. Only the relationship between the GLHC and the MHLC Chance scale was not consistent across RA and SSc: this relationship was moderate (r's = .47 and .44) and significant for the two RA samples and not different from zero in the SSc sample. There is no readily apparent explanation for this difference across disease groups.

GLHC was correlated with psychosocial adjustment in the SSc sample and one of the RA samples. These results suggest the importance of examining GLHC beliefs when seeking to understand the adaptation of individuals with chronic illness. It is interesting that the relationships found between GLHC beliefs and psychosocial outcome suggest that stronger beliefs in God as a source of health-related control are associated with *poorer* adjustment. These relationships can be contrasted with the findings of Welton et al. (1996), who, in a healthy sample, found that general God health-control beliefs tended to be positively associated with the practice of health behaviors. However, the present results cannot be explained simply as a result of greater disease severity; disease severity was uncorrelated with GLHC beliefs. It may be that people who suffer from serious, chronic, progressive, and largely uncontrollable illnesses such as RA and SSc and who simultaneously endorse strong beliefs in God's control over their illness experience disappointment and frustration when their disease status does not improve, in a way that would not be evident in healthy individuals who believe that God is in control of their health. This interpretation is supported by the findings of Hathaway and Pargament (1991), who described various possible relationships between beliefs about God and coping

strategies with differential implications for adjustment to stressors. Hathaway and Pargament described three types of coping related to interpretations of perceptions of God and self as active or passive: (1) a deferring style, in which the self is passive and responsibility for coping is placed under God's control; (2) a self-directing style, in which God is passive while the self is active; and (3) a collaborative style, in which both God and the self are active, working together to deal with the stressor. They found that the deferring style was associated with poorer adjustment to stress, whereas the other two styles were associated with more positive adaptation. Examining these relationships, specifically in individuals with both chronic and acute illnesses, would help to delineate the adaptative value of God-related control beliefs within the context of illness.

The vast majority of adults, at least in the United States, endorse a belief in God. That fact, combined with the evidence provided here that beliefs about God's role in controlling health/illness may be important to psychological adjustment, underscores the need to assess such beliefs in studies of people with chronic illness. Koenig (1995) recommended that measures be developed and research studies undertaken to identify the religious cognitive schemas that facilitate or impair psychological adaptation. The GLHC scale provides a new and important tool to aid research efforts in the illness domain.

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REFERENCES

Affleck, G., Tennen, H., Pfeiffer, C., & Fifield, J. (1987). Appraisals of control and predictability in adapting to a chronic disease. *Journal of Personality and Social Psychology, 53,* 273-279.

Brown, G. K., & Nicassio, P.M. (1987). Development of a questionnaire for the assessment of active and passive coping strategies in chronic pain patients. *Pain, 31,* 53-64.

Brown, G. K., Wallston, K. A., & Nicassio, P. M. (1989). Social support and depression in rheumatoid arthritis: A one-year prospective study. *Journal of Applied Social Psychology, 19,* 1164-1181.

Callahan, L. F., & Rao, J. (1996). Arthritis and women's health: Prevalence, impact, and prevention. *American Journal of Preventive Medicine, 12,* 401-409.

Canosco, J. J. (1997). *Rheumatology in primary care.* Philadelphia: W. B. Saunders.

Clements, P. J., Lachenbruch, P. A., Seibold, J. R., White, B., Weiner, S., Martin, R., Weinstein, A., Weisman, M., Mayes, M., Collier, D., Wigley, F., Medsger, T. A., Steen, V. D., Moreland, L., Dixon, M., Massa, M., Lally, E., McCloskey, D., Varga, J., Ingenito, F., & Furst, D. (1995). Inter and intraobserver variability of total skin thickness score (modified Rodnan TSS) in systemic sclerosis. *Journal of Rheumatology, 22,* 1281-1285.

Clements, P. J., Lachenbruch, P. A., Seibold, J. R., Zee, B., Steen, V. D., Brennan, P., Silman, A. J., Allegar, N., Varga, J., Massa, M., Wigley, F., Ingenito, F., Weisman, M., White, B., Martin, R. W., McCloskey, D., Moreland, L. W., Mayes, M., Lally, E. V., Unanue, M., Collier, D. H., Weiner, S., Weinstein, A., Medsger, T. A., Andrews, B., Dixon, M., & Furst, D. E. (1993). Skin thickness score in systemic sclerosis: An assessment of interobserver variability in 3 independent studies. *Journal of Rheumatology, 20,* 1892-1896.

Derogatis, L. R., & Derogatis, M. F. (1990). *Psychosocial Adjustment to Illness Scale: Administration, scoring and procedures manual-II.* Baltimore: Clinical Psychometric Research.

Derogatis, L. R. (1986). *Psychosocial Adjustment to Illness Scale.* Towson, MD: Clinical Psychometric Research.

Fries, J. F., Spitz, P. W., & Young, D. Y. (1982). The dimensions of health outcomes: The Health Assessment Questionnaire disability and pain scales. *Journal of Rheumatology, 9,* 789-793.

Fuchs, H. A., Brooks, R. H., Callahan, L. F., & Pincus, T. (1989). A simplified twenty-eight-joint quantitative articular index in rheumatoid arthritis. *Arthritis & Rheumatism, 32,* 531-537.

Hathaway, W. L., & Pargament, K. I. (1991). The religious dimensions of coping: Implications for prevention and promotion. *Religion and Prevention in Mental Health: Conceptual and Empirical Foundations, 9,* 65-92.

Hoffman, J. P., & Miller, A. S. (1997). Social and political attitudes among religious groups: Convergence and divergence over time. *Journal for the Scientific Study of Religion, 36,* 52-70.

Koenig, H. G. (1995). Religion as cognitive schema. *International Journal of the Psychology of Religion, 5,* 31-37.

Malcarne, V. L., & Greenbergs, H. L. (1996). Psychological adjustment to systemic sclerosis. *Arthritis Care and Research, 9,* 51-59.

Medsger, T. A., & Steen, V. D. (1996). Classification, prognosis. In P. J. Clements & D. E. Furst (Eds.), *Systemic Sclerosis* (pp. 51-64). Baltimore: Williams & Wilkins.

Meenan, R. F., Gertman, P. M., & Mason, J. H. (1984). Measuring health status in arthritis: The Arthritis Impact Measurement Scales. *Arthritis & Rheumatism, 23,* 146-152.

Moser, D. K., Clements, P. J., Brecht, M., & Weiner, S. R. (1993). Predictors of psychosocial adjustment in systemic sclerosis. *Arthritis & Rheumatism, 36,* 1398-1405.

Park, C., & Cohen, L. H. (1992). Religious beliefs and practices and the coping process. In B. N. Carpenter (Ed.), *Personal Coping, Theory, Research and Application* (pp. 184-198). Westport, CT: Praeger.

Poole, J. L., & Steen, V. D. (1991). The use of the Health Assessment Questionnaire (HAQ) to determine physical disability in systemic sclerosis. *Arthritis Care and Research, 4,* 27-38.

Poole, J. L., Williams, C. A., Bloch, D. A., Hollak, B., et al. (1995). Concurrent validity of the Health Assessment Questionnaire Disability Index in scleroderma. *Arthritis Care and Research, 8,* 189-193.

Schumacher, H. R., Klippel, J. H., & Koopman, W. J. (Eds.) (1993). *Primer on the Rheumatic Diseases, 10th Edition.* Atlanta, GA: Arthritis Foundation.

Shapiro, D. H., Schwarz, C. E., & Astin, J. A. (1997). Controlling ourselves, controlling our world: Psychology's role in understanding positive and negative consequences of seeking and gaining control. *American Psychologist, 51,* 1213-1230.

Sinclair, V. G., Wallston, K. A., Dwyer, K. A., Blackburn, D. S., & Fuchs, F. (1998). Effects of a cognitive-behavioral intervention for women with rheumatoid arthritis. *Research in Nursing & Health, 21,* 315-326.

Skevington, S. M. (1987). Psychological aspects of pain in rheumatoid arthritis: A review. *Social Science and Medicine, 23,* 567-575.

Smith, C. A., Wallston, K. A., Dwyer, K. A., & Dowdy, S. W. (1997). Beyond good and bad coping: A multidimensional examination of coping with pain in persons with rheumatoid arthritis. *Annals of Behavioral Medicine, 19,* 11-21.

Smith, C. A., & Wallston, K. A. (1992). Adaptation in patients with chronic rheumatoid arthritis: Appplication of a general model. *Health Psychology, 11,* 151-162.

Steen, V. D. (1990). Systemic sclerosis. *Rheumatic Diseases Clinics of North America, 16,* 641-654.

Steen, V. D., & Medsger, T. A. Jr. (1990). Epidemiology and natural history of systemic sclerosis. *Rheumatic Diseases Clinics of North America, 16,* 1-10.

Vitaliano, P. P. (1991). *Revised Ways of Coping Checklist (RWCCL) and Appraisal Dimensions Scale (ADS) manual.* Seattle: University of Washington.

Vitaliano, P., Russo, J., Carr, J., Maiuro, R., & Becker, S. (1985). The Ways of Coping Checklist: Revision and psychometric properties. *Multivariate Behavioral Research, 20,* 3-26.

Wallston, K. A. (1989). Assessment of control in health-care settings. In A. Steptoe & A. Appels (Eds.), *Stress, Personal Control and Health* (pp. 85-105). Chicester, England: Wiley.

Wallston, K. A., Brown, G. K., Stein, M. J., & Dobbins, C. J. (1989). Comparing the short and long versions of the Arthritis Impact Measurement Scales. *Journal of Rheumatology, 16,* 1105-1109.

Wallston, K. A., Stein, M.. J., & Smith, C. A. (1994). Form C of the MHLC scales: A condition-specific measure of locus of control. *Journal of Personality Assessment, 63,* 534-553.

Wallston, K. A., Wallston, B. S., & DeVellis, R. F. (1978). Development of the Multidimensional Health Locus of Control (MHLC) scales. *Health Education Monographs, 6,* 160-170.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063-1070.

Welton, G. L., Adkins, A. G., Ingle, S. L., & Dixon, W. A. (1996). God control: The fourth dimension. *Journal of Psychology and Theology, 24,* 13-25.

Yelin, E., Meenan, R., Nevitt, M., & Epstein, W. (1980). Effects of disease, social and work factors. *Annals of Internal Medicine, 93,* 551-556.

Zautra, A. J., Burleson, M. H., Blalock, S. J., DeVellis, R. F., DeVellis, B. M., Smith, C. A., Wallston, K. A., & Smith, T. W. (1995). Arthritis and perceptions of quality of life: An examination of positive and negative affect in rheumatoid arthritis patients. *Health Psychology, 14,* 399-408.