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Self-Rated Health and Quality of Life in Slovak Rheumatoid Arthritis Patients

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The impact of pain on psychological well-being in rheumatoid arthritis: the mediating effects of self-esteem and adjustment to disease

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Abstract

The aim of this study was to determine whether self-esteem and adjustment to disease can mediate the association between pain and psychological well-being in patients with rheumatoid arthritis (RA). Coefficients of correlation, multiple linear regressions and Structural Equation Modeling (SEM) were employed in order to examine the direct and indirect relationships between pain, self-esteem, adjustment to disease and psychological well-being in a sample of 160 recently-diagnosed RA-patients. The outcomes of the analyses indicate that self-esteem and adjustment to disease are important links between pain and psychological well-being. Moreover, the results suggest the increasing importance of personality variables in mediating the relationship between pain and psychological well-being as the disease advances. The findings provide evidence for considerations that psychosocial interventions, focused on increasing the self-esteem and improving the adjustment to disease, may reduce the impact of pain on patients' psychological well-being and quality of life in general.

Introduction

Rheumatoid arthritis (RA) is a chronic disease with no known aetiology, course and radical treatment. The disease is typically accompanied by pain, fatigue, unpredictability and inevitable disability (Wolfe et al. 1991). Moreover, suffering from this chronic disease does not only mean deterioration of physical functioning but also deterioration of social and psychological functioning. In RA the patient's social roles, capacity to work, independence, self-concept, mood and psychological well-being are usually affected as well (Krol et al. 1993, Doeglas 2000).

Pain and psychological well-being

In comparison with healthy controls or with patients with other chronic diseases, RA patients demonstrate poorer psychological well-being (Smedstad et al. 1996). Psychological well-being can be described as individual mood in a global sense, and is frequently operationalized as anxiety and depression (Krol et al. 1993). When considering the association between anxiety and pain, previous studies have revealed that anxiety is significantly associated with attention to nociceptive stimuli and consequently with the awareness of pain. In general, the greater the anxiety, the greater the reaction to nociceptive stimuli (Reitsma 1994, Newman and Mulligan 2000). Similarly, a great deal of previous theoretical analysis and empirical data is available on the association between pain and depression in patients with a chronic disease (Wolfe and Hawley 1993, Smedstad et al. 1996, Huyser and Parker 1999, Newman and Mulligan 2000). However, there is considerable controversy in the literature regarding the degree and the causal direction of these associations. Some studies have found that the level of pain predicts subsequent depression and anxiety, whereas others have reported the opposite (Brown 1990, Newman and Mulligan 2000). This great variability in the strength as well as the causality in the relationship between pain and psychological well-being suggests that there are factors which may mediate the impact of chronic disease on patients' psychological well-being.

Self-esteem and adjustment to disease as intervening variables

Based on Lazarus and Folkman's (1984) stress and coping theory, it is hypothesized that self-esteem and adjustment to disease may contribute to the variability in the impact of pain on psychological health and well-being. Following their terminology, chronic disease with its typical concomitants such as pain, fatigue and disability is considered to be a permanent stressor that provokes the processes of cognitive appraisal and coping. The association between stress and coping is influenced by psychological resources, which are for example the personality characteristics that people draw upon to help them withstand threats by

a stressor. One of these resources residing within the self is self-esteem (Pearlin and Schooler 1978, Somerfield and McCrae 2000). As an element of the self-concept, self-esteem - usually described as self-acceptance or overall affective evaluation of one's worth - has been found to be associated with both physical and psychological health (Krol et al. 1994). A longitudinal study by Brown et al. (1990) revealed that low self-esteem acts as a vulnerability factor in the sense of being associated with doubling the risk of later depression.

Similarly, adjustment to disease, which can be viewed as a result of the coping process, may play an important role in mediating the emotional reactions to stress caused by a disease. The literature on patients' adjustment to the natural course of arthritis has consistently shown the benefits to patients' physical and psychological health resulting from active coping efforts to manage their pain (Stephens et al. 2002). According to Skevington (1993) a growing body of evidence implies that beliefs which patients hold may be key indicators of their ability to manage their pain and mental health during the course of their disease. Beliefs in personal control over pain and other symptoms have been related to better adjustment to disease and subsequently to lower levels of physical disability, depression and anxiety (Beckham et al. 1994). In line with this, cognitive-behavioural models of chronic pain emphasise the importance of patients' cognition (e.g. disease-related self-statements) as mediators of emotional and behavioural responses to pain and physical impairment (Flor and Turk 1988).

The objective of the present study was to examine whether self-esteem and adjustment to disease can mediate the impact of pain on psychological well-being in patients with recently-diagnosed RA. It is hypothesised that more pain is associated with poorer psychological well-being. It is also hypothesised that higher levels of self-esteem and better adjustment to disease may positively influence the process between pain and psychological well-being.

Method

Sample

The EUROpean Research on Incapacitating Diseases and Social Support (EURIDISS) is a multi-centre, multi-disciplinary, longitudinal project focusing on patients with rheumatoid arthritis and their quality of life. The project participants are the Netherlands, France, Norway, Sweden, the United Kingdom and Slovakia. Within the framework of this project 160 recently-diagnosed RA patients from rheumatology outpatient clinics in the eastern part of Slovakia (Kosice and Presov cities) were followed over a four-year period. The research sample was selected through a purposive sampling procedure according to the EURIDISS protocol (EURIDISS

1990). The inclusion criteria were the following: age from 20 to 70 years at the onset of the study, diagnosis of RA according to the ARA 1987 revised criteria, delay between time of establishing the RA diagnosis and inclusion in the cohort less or equal to four years. Patients with serious comorbidity, malignant RA with systemic vasculitis or very disabling RA (stage IV of Steinbrocker's classification) were excluded. Written informed consent was acquired from the subjects. The non-response rate was 10% at entry. No significant differences were found between the responders and non-responders on sex and age characteristics.

Procedure

The study was a repeated cross-sectional design with data collected annually over a four-year period. The data collection consisted of two parts: health status data collection and personal interview. A rheumatologist arranged an appointment with the patient in the rheumatology outpatient clinic and collected health status data during a medical check-up of about 30 minutes. Within a fortnight after the medical check-up another appointment with the patient was made in order to collect data from a personal interview. An interview lasting about one and a half hours was conducted by a trained interviewer in non-hospital surroundings. At each interview the patient completed a number of structured scales administered verbally by the interviewer and also filled in several self-reports.

Measures

The measures used within the study were selected from a wider battery of instruments included in the EURIDISS protocol (EURIDISS 1990). The adaptation of the instruments to Slovak conditions was carried out via the following procedure. Firstly, two Slovak native speakers with mastery of the English language translated the instruments from English into Slovak. Then the instruments were re-translated from Slovak back into English, this time by a native English speaker with mastery of the Slovak language. The discrepancies between the different versions of the instruments were discussed.

Pain

Total joint pain was based on the rheumatologist's examination of joints for sensitivity to pressure using the Ritchie Articular Index (RAI) (Ritchie 1968). For each joint the patient's reaction to the pressure was registered as follows: 0 (= no pain), 1 (= patient complains of pain), 2 (= patient complains of pain and winces), 3 (= patient complains of pain, winces and withdraws). The RAI total score consists of the sum of the patient's reactions to pressure (range 0-72). Higher score indicates more pain. Cronbach's alpha for this instrument at baseline was 0.83.

Within the study the Nottingham Health Profile (NHP) pain subscale was used as a self-report measure of pain (Hunt et al. 1980, Hunt et al. 1981). This subscale contains eight statements related to experience of pain during the last four weeks. The patient may circle yes (= 1) or no (= 0) to these statements, depending on whether the statements resemble his/her own condition. The NHP-pain total score is obtained by summing the item scores (range 0-8). The higher the score, the more pain the patient experiences. The instrument appears to have satisfactory psychometric properties (Hunt et al. 1980, Hunt et al. 1981). Among the present patient population, Cronbach's alpha at baseline was 0.83.

Self-esteem

The level of self-esteem was measured using the Rosenberg Self-Esteem Scale (RSE) (Rosenberg 1965). The RSE contains 10 items, five positively and five negatively formulated. The total score runs from 10 to 40. Higher score indicates a higher level of self-esteem. Cronbach's alpha for this instrument was somewhat lower at baseline (0.56), although at follow-ups it was around 0.70.

Adjustment to disease

For measuring adjustment to disease the General Adjustment to Rheumatoid Arthritis (GARA) was used, a single-item measure asking: "Do you think that you have adjusted well to the situation and cope well with problems that have developed as a consequence of rheumatism?" The answer possibilities range from "very well" (=1) to "not well at all" (=5). The higher the score, the poorer the adjustment of the patient (EURIDISS 1990).

Psychological well-being

A scaled version of the General Health Questionnaire was applied as a measure of psychological well-being (Goldberg and Hillier 1979). In the GHQ-28 the patient is asked to compare his recent psychological state with his usual state. For each item four answer possibilities are available (Likert scoring, 1-2-3-4). The total score represents the sum of the 28 items (range 28-112). The higher the score, the poorer the psychological well-being of the patient. Psychometric properties of the GHQ-28 within the EURIDISS research are presented in a study by Krol et al. (1994). Psychometric properties of the Slovak version of this instrument are discussed in a study by Nagyova et al. (2000). Among the present patient population, Cronbach's alpha for this instrument at baseline was 0.92.

Analysis

To analyse the data, coefficients of correlation, one-way analysis of variance (ANOVA) with corrections for multiple comparisons with the Scheffe procedure ($p \leq .05$), and multiple linear regression available in

the SPSS for Windows statistical package (release 10.1.0) were used. The parameters of the linear Structural Equation Model (SEM) were estimated using the LISREL 8.50 software (Jöreskog and Sörbom 1993). The smaller sample size was taken into account by using the Bentler-Yuan TF statistic that refers to an F-distribution with degrees of freedom p^*-q and $N-(p^*-q)$ (Bentler and Yuan 1999). In LISREL the following indices were selected as indicators of goodness of fit of the model: the chi-square (χ^2), probability (p-value), adjusted goodness-of-fit index (AGFI), and standardised root mean square residual (SRMR). The χ^2 measures the distance or discrepancy between the covariance matrix predicted by the model and the observed covariance matrix. Small χ^2 values correspond to a good fit of the model and large χ^2 values to a bad fit. Zero χ^2 corresponds to a perfect fit. The quality of the model may also be expressed by an internal criterion, the p-value (probability). With multivariate normal data and a reasonably large sample size, a statistically nonsignificant χ^2 (typically $p > .05$) indicates a good fit of the model. Nevertheless, because the χ^2 test is sensitive to sample size, formal tests of model fit are supplemented by the examination of descriptive measures of fit. Among the indices most frequently used are the goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI). The GFI is a measure of absolute fit that represents the degree to which the fitted model reproduces the variances and covariances in the observed data. The GFI theoretical range is from 0 to 1, with larger values indicating better fit. The AGFI is the GFI adjusted for the degrees of freedom of the model. Values above 0.80 represent an acceptable limit for a good fit. Standardised root mean square residual (SRMR) is a measure of the average of the fitted residuals, and it may be used to compare the fit of two different models for the same data. Small SRMR values (in general below 0.05) correspond to a good fit of the model and large SRMR values to a bad fit (Jöreskog and Sörbom 1993).

Results

Summary statistics for variables at baseline and follow-ups

Table 1 illustrates the demographic characteristics of the sample. In this study the mean age of the patients was 48.7 years (range 22-70) and the mean disease duration was 22.2 months (range 0-48). Eighty-four percent of all subjects were women, 78% were married, and 13% were living alone. Table 1 also displays the three-year course of the sample with regard to means and standard deviations on instruments. On a group level, no significant differences were found between the four measurement points. The total number of drop-outs at the 36-month follow-up was 36 patients. No significant differences were found regarding study variables between the drop-outs and patients who remained in the study.

Table 1 Summary statistics for study variables at baseline and follow-ups^a

	Theoretical range of scores ^b	Baseline (T1)	12 months (T2)	24 months (T3)	36 months (T4)	One-way ANOVA
Number of subjects		160	151	133	124	
Age in years		48.7 (12.0)				
Disease duration in months		22.2 (15.9)				
Sex: female		84.4%				
Marital status: married		78.1%				
Living situation: living alone		13.1%				
RAI ^c	0-72	13.3 (7.4)	12.5 (8.8)	12.3 (9.2)	11.4 (8.9)	ns ^d
NHP	0-8	4.9 (2.5)	4.5 (2.7)	4.6 (2.5)	4.7 (2.7)	ns
RSE	10-40	27.3 (3.1)	27.6 (3.3)	27.6 (3.3)	28.1 (3.4)	ns
GARA	1-5	2.5 (0.9)	2.3 (0.9)	2.5 (1.0)	2.5 (1.0)	ns
GHQ	28-112	56.7 (12.2)	54.1 (12.2)	55.3 (12.3)	56.2 (12.7)	ns

^a Displayed values are means (SD) and percentages

^b Higher scores indicate "worse functioning" except for the RSE (higher self-esteem)

^c Abbreviations: RAI=Ritchie Articular Index, NHP=Nottingham Health Profile, RSE=Rosenberg Self-Esteem Scale, GARA=General Adjustment to Rheumatoid Arthritis, GHQ=General Health Questionnaire-28

^d ns-nonsignificant difference

Correlation coefficients

Table 2 demonstrates the cross-sectional relationships between pain, self-esteem, adjustment to disease and psychological well-being. As expected, higher self-esteem and better adjustment to disease were associated with better psychological well-being. Similarly, less pain was significantly associated with better psychological well-being. This holds true for all measurement points.

Multiple linear regression analysis

In multiple linear regression analysis (Table 3) psychological well-being was predicted from pain (step 1), from pain and self-esteem added in the second equation (step 2a) or from pain and adjustment to disease (step 2b), and finally from pain, self-esteem and adjustment to disease added in the last equation (step 3). In general, the results of the analysis provide support for the stability of the relationships between the variables over time, although the outcomes at the baseline differ from later findings to some extent. The explained total variance of psychological well-being was lower at baseline than in later years. At follow-ups pain explained

36% of the total variance of psychological well-being on average, and self-esteem together with pain explained 52%, whereas adjustment to disease and pain explained 46%. All variables together, i.e. pain, self-esteem and adjustment to disease, explained 57% of the total variance of psychological well-being on average.

Table 2 Correlation coefficients for study variables at four measurement points T1-T4

T1	RAI1 ^a	NHP1	RSE1	GARA1	GHQ1
RAI1	-				
NHP1	.49***	-			
RSE1	-.24**	-.42***	-		
GARA1	.39**	.50***	-.27*	-	
GHQ1	.20*	.45***	-.47***	.42***	-
T2	RAI2	NHP2	RSE2	GARA2	GHQ2
RAI2	-				
NHP2	.43***	-			
RSE2	-.30***	-.43***	-		
GARA2	.32**	.47***	-.50***	-	
GHQ2	.28***	.64***	-.54***	.54***	-
T3	RAI3	NHP3	RSE3	GARA3	GHQ3
RAI3	-				
NHP3	.25**	-			
RSE3	-.16	-.33***	-		
GARA3	.28***	.44***	-.43***	-	
GHQ3	.21*	.60***	-.65***	.55***	-
T4	RAI4	NHP4	RSE4	GARA4	GHQ4
RAI4	-				
NHP4	.41***	-			
RSE4	-.34**	-.35***	-		
GARA4	.30**	.54***	-.51***	-	
GHQ4	.29**	.59***	-.57***	.58***	-

* p≤ .05, ** p≤ .01, *** p≤ .001

^a Abbreviations: RAI=Ritchie Articular Index, NHP=Nottingham Health Profile, RSE=Rosenberg Self-Esteem Scale, GARA=General Adjustment to Rheumatoid Arthritis, GHQ=General Health Questionnaire-28

Table 3 Multiple regression analysis: pain (RAI, NHP), self-esteem (RSE), adjustment to disease (GARA) on psychological well-being (GHQ) for T1, T2, T3, and T4 measurement points

	GHQ			
	T1 β value	T2 β value	T3 β value	T4 β value
Step 1				
RAI ^a	-.03	-.01	.08	.06
NHP	.48***	.64***	.57***	.55***
(Adjusted R ²)	(.21)	(.40)	(.35)	(.33)
F	19.56***	49.06***	34.48***	30.49***
Step 2a				
RAI	-.05	-.05	.02	-.04
NHP	.35***	.52***	.43***	.46***
RSE	-.33***	-.33***	-.52***	-.42***
(Adjusted R ²)	(.30)	(.49)	(.59)	(.49)
F	20.72***	46.62***	61.47***	37.54***
Step 2b				
RAI	-.11	-.16	.01	-.03
NHP	.36*	.61***	.41***	.37***
GARA	.27*	.30***	.38***	.38***
(Adjusted R ²)	(.21)	(.51)	(.45)	(.43)
F	6.42***	33.51***	34.90***	30.75***
Step 3				
RAI	-.14	-.19	-.01	-.04
NHP	.26	.52***	.37***	.34***
RSE	-.28*	-.21*	-.44***	-.31***
GARA	.29*	.30**	.21**	.30**
(Adjusted R ²)	(.30)	(.57)	(.60)	(.53)
F	7.61***	31.90***	48.37***	34.23***

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

^a Abbreviations: RAI=Ritchie Articular Index, NHP=Nottingham Health Profile, RSE=Rosenberg Self-Esteem Scale, GARA=General Adjustment to Rheumatoid Arthritis, GHQ=General Health Questionnaire-28

LISREL analysis

The relationships between pain, self-esteem, adjustment to disease and psychological well-being were also examined within the linear Structural Equation Model (SEM). Table 4 presents the results of the LISREL analysis at four measurement points. Figure 1 displays the model and the standardised path coefficients for T1, T2, T3 and T4 measurement points respectively. Chi-square (χ^2), p-value (probability), adjusted goodness-

of-fit index (AGFI) and standardised root mean square residual (SRMR) were used as indicators of goodness of fit of the model.

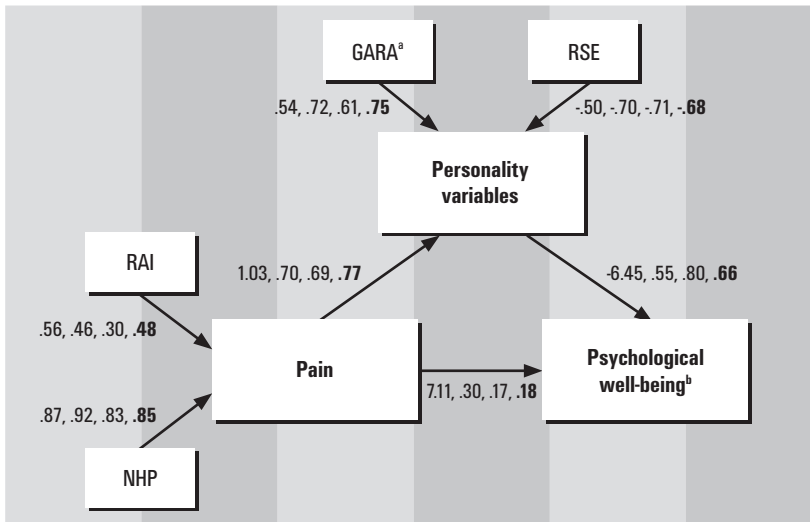
After performing the analysis it was found that the T1-model fitted our data rather well [χ^2 (df 3) = 6.09, $p = .11$, AGFI = 0.92, SRMR = .036]. The T2-model also proved to fit our data well [χ^2 (df 3) = 5.18, $p = .16$, AGFI = 0.93, SRMR = .032]. As for the T3-model, the indicators of fit for this model

Table 4 Fit indices for Structural Equation Model (SEM) at T1, T2, T3 and T4 measurement points

	T1	T2	T3	T4
χ^2	6.85	5.20	9.52	13.32
df	3	3	3	3
p-value	.08	.16	.02	.004
AGFI	.92	.93	.86	.84
SRMR	.036	.032	.050	.038

Abbreviations: χ^2 = chi-square, df = degrees of freedom, AGFI= Adjusted Goodness-of-Fit Index, SRMR = Standardised Root Mean Square Residual

Figure 1 Relationships between pain, personality variables and psychological well-being at T1, T2, T3 and T4 measurement points, respectively (T4 data in bold)



^a Abbreviations: RAI=Ritchie Articular Index, NHP=Nottingham Health Profile, RSE=Rosenberg Self-Esteem Scale, GARA=General Adjustment to Rheumatoid Arthritis

^b Psychological well-being was assessed by the General Health Questionnaire-28 (GHQ)

show somewhat dissimilar results [χ^2 (df 3) = 10.92, $p = .012$, AGFI= 0.86, SRMR = .050] and the same holds true for the T4-model [χ^2 (df 3) = 13.32, $p = .004$, AGFI= 0.84, SRMR = .038]. The p -values of the latter two models did not prove to be significant. A review of the standardised path coefficients may provide us with answers concerning the worse fit of the models and may give us insight into the direct and indirect effects of the independent variable on psychological well-being. In T3 and T4 models in comparison with T1 and T2, the direct path between pain and psychological well-being appears to weaken, whereas the indirect path leading via personality variables seems to become stronger. These outcomes provide support for the idea of the mediating role of self-esteem and adjustment to disease in the relationship between pain and psychological well-being.

Discussion

The aim of the present study was to examine whether personality variables such as self-esteem and adjustment to RA may mediate the impact of pain on psychological well-being.

The stability of psychological well-being over a 4-year period on a group level is in line with the outcomes of Smedstad et al. (1997), who found levels of anxiety and depression to be stable over time in recently-diagnosed RA patients. The fairly high levels of anxiety and depression in these patients is a cause for concern, and suggest that early RA patients may require additional interventions beyond those provided by standard care. These additional interventions should focus on emotional issues related to the disease.

Results of correlation analyses indicate that RA patients who report high levels of pain are at risk of concurrently experiencing mental distress, i.e. more anxiety and depression. Similarly, high levels of pain are directly associated with decrease in self-esteem and worse adjustment to the situations that develop as a consequence of rheumatism. On the other hand, individuals who report a higher level of self-esteem or perceive themselves as well-adjusted to RA experience less psychological distress. Results of multiple linear regression analysis support previous findings and demonstrate that pain decreases the level of psychological well-being significantly, and that self-esteem and adjustment to disease are important links between pain and psychological well-being. In comparison with T2, T3, and T4 measurements, the somewhat lower figures for the total variance explained in psychological well-being at baseline (T1) document the growing importance of self-esteem and adjustment to RA in the pain - psychological well-being relationship during the course of the disease. In addition, the percentages of the total variance explained are of some interest. Pain itself explains at about one third of the total variance of

psychological well-being, whereas pain together with personality variables explain more than one half of the total variance of psychological well-being. In addition, the results of LISREL provide support for the favourable effect of both intervening variables - self-esteem and adjustment to disease - on psychological well-being in patients with early RA. In particular, inspection of the standardised path coefficients sheds more light on the direct and indirect effects of the independent variables on psychological well-being. As the disease advances the direct path between pain and psychological well-being appears to weaken, whereas the indirect path leading via personality variables seems to become stronger.

The results of the present study correspond with the findings of several previous studies. A study by Seff et al. (1992) confirmed that stress caused by a disease has an indirect effect on depression via self-esteem and self-efficacy. A study by Penninx et al. (1998) affirmed the favourable effect of high self-esteem, high sense of mastery, high self-efficacy and social support on depressive symptoms in a community-based sample of elderly people both with and without chronic disease. Several other studies provide support for the importance of beliefs concerning the adjustment to disease. In more detail, the outcomes of a study by Connel et al. (1994) suggest that in general a more positive judgement of a person's ability to cope with an event reduces psychological distress. Revenson and Felton (1989) report a strong association between coping and adjustment to disease as a result of the coping process on the one hand and affective outcomes on the other. From the outcomes of a study by Bendtsen and Hörnquist (1994) it appears that a person may benefit from accepting a chronic disease such as RA and adapting to the situations that develop as a consequence of illness. By accepting the disease a person can set up new reasonable frames or goals and be able to fulfil them and thereby increase his/her quality of life.

Limitations

Some caveats need mentioning. In particular, causal interpretations regarding the associations between the variables examined in the study should be made with some caution. Despite the fact that causal modeling, which hypothesizes causal relationships between variables and tests the causal model with a linear equation system, is one of the major applications of structural equation modeling, it has several limitations. The analyses are based on repeated cross-sectional data and therefore causal interpretations regarding the associations among the variables cannot be conclusively demonstrated. Nevertheless, what causal modeling allows us to do is to examine to what extent the data fail to agree with one reasonably feasible consequence of a model of causality. If the linear equations system isomorphic to the path diagram does fit the data well, that is encouraging, but it is no proof of the truth of the causal model (Jöreskog

and Sörbom 1993). To gain definite proof of the study hypotheses, further research with bigger sample size and longitudinal design is needed. If the intervening role of self-esteem or adjustment to disease were evaluated in an experimental study, the results could contribute to the knowledge about causal relationships between variables, and future interventions could be adapted accordingly. To test the causality of the associations between pain, self-esteem, adjustment to disease and psychological well-being found in this study, an observational study would not be sufficient and actively manipulating self-esteem or adjustment to disease would be more useful in this respect. The experimental study should focus on the effect of interventions aimed at increasing self-esteem, better coping with disease and better adjustment to disease. The analyses should concentrate on causal relationships between variables for which the results of this study provide some indications.

Practice implications

The message of the present study is that patients with RA who report high levels of pain are at risk of concurrently experiencing considerable mental distress, i.e. more anxiety and depression. However, the outcomes of the study at the same time provide support for the important mediating role of self-esteem and adjustment to disease in the relationship between pain and psychological well-being. Beliefs that patients hold about their illness and themselves may be key indicators of their ability to manage their pain and psychological well-being during the course of the disease and treatment. These findings imply that psychological strategies to change a patient's perceptions of stress caused by disease and pain may be appropriate in this context. In line with this, cognitive-behavioural therapy is a good candidate for dealing with pain and depression in persons with RA (Rhee et al. 2000). Similarly, patients may benefit from psychoeducational or self-management interventions aimed at enhancing their self-esteem and ability to manage their disease and its symptoms on a daily basis, and thus to improve their physical and psychological functioning (Barlow et al. 2002, Mulligan and Newman 2003).

Conclusions

Deterioration in psychological well-being and especially more frequent experience of depression and anxiety often manifest themselves in excessive complaints of pain and frequent clinic attendance. Nevertheless, treatment interventions that focus on modification of patients' self-esteem and adjustment to disease may reduce this behaviour since they may significantly influence the affective responses to pain and thus improve the patients' quality of life in general.

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