The impact of passive coping on rheumatoid arthritis pain

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Abstract

Objective. To determine the ability of coping to predict pain.

Methods. Data on 111 rheumatoid arthritis (RA) patients (86 women and 25 men) were gathered from a mail survey. Statistical analyses were conducted on a range of clinical and psychological variables: physical disability, disease duration, pain, depression, helplessness, and passive and active coping. Pain was measured with both the pain subscale of the Arthritis Impact Measurement Scales and a visual analogue scale, and coping was measured with the Vanderbilt Pain Management Inventory.

Results. A series of multiple regression analyses revealed that the optimal predictors of pain in RA were physical disability and passive coping, which accounted for 40% of the variance associated with pain. Path analysis revealed that passive coping mediates between the physical disability and pain, and between physical disability and depression.

Conclusion. The results of this study have implications for the overall management of RA. In addition to the medical treatment, the experience of pain and depression in RA should be addressed through an intervention programme designed to enhance coping strategies.

Key Words: Rheumatoid Arthritis, Passive coping, Physical disability, Pain, Depression, Helplessness.

Rheumatoid arthritis (RA) is an unpredictable, chronic disease of unknown cause. Its most troublesome feature and a key determinant of the health perceptions of patients and health professionals is pain [1]. Pain has been linked with a number of factors, including the disease duration [2], physical disability [1] and several demographic characteristics [3–6].

Although pain is considered to be largely a sensory experience, there appears to be a strong correlation with psychological factors such as depression [7], helplessness [8] and coping strategies [9–11]. RA patients have higher rates of depression than the general population but the reported rates vary considerably [12]. Depression has been viewed as both a cause and an outcome of pain [13], while helplessness and a lack of control over events appear to mediate between the physical and psychological variables involved in the experience of RA [8]. A belief that one has no control over the disease can lead to reduced efforts to cope with the disease [14], and consequently a poorer health outcome.

Coping refers to the cognitive, emotional and behavioural strategies patients employ in their day-to-day attempt to manage the consequences of their disease. Coping has been classified in terms of the focus of strategies, such as emotion-focused and problem-focused coping [15], or in terms of the expected outcome, such as active and passive coping [9]. Active and passive coping refer to the degree of internal and external control, respectively, that the patient relies on to manage pain.

Passive coping is associated with greater pain, disability and depression, whereas active coping is associated with less pain, disability and depression [9]. Snow-Turek [11] found that active coping accounted for a smaller percentage of variance in relation to pain than passive coping. This finding indicates that, in assessing coping strategies used by RA patients or in introducing coping strategies in any intervention programme for RA patients, attention should be focused on reducing passive coping rather than increasing active coping. Similar findings were reported by Brown et al. [10].

To summarize, the literature suggests that clinical, demographic and psychological variables have an impact on the reported pain among patients with RA. Thus, this cross-sectional exploratory study aimed to investigate the influence of independent variables such as physical disability, disease duration, depression, helplessness and coping on the variance associated with pain. Of particular interest were: (i) the association between coping and pain; and (ii) how the other variables contribute to this relationship.


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Methods

Procedure
All participants were recruited over a period of 4 months from two private rheumatology practices at the time of their regular consultation. One hundred and thirty questionnaires were distributed and 111 questionnaires were returned to the researchers, a response rate of 86%. Convenience sampling was necessary in order to verify the RA diagnosis, current disease activity and management.

Participants
The 111 participants (77.5% female and 22.5% male) had been diagnosed with definite or classic RA by practising rheumatologists. The majority of the participants (77.5%) had attained School Certificate (10 yr of schooling). Two-thirds (66.7%) of them were not employed. The majority of participants (73%) were married. Their age varied from 17 to 76 yr, with a mean of 55.2 yr (S.D. 10.9). Disease duration ranged from 6 months to 45 yr, with a mean of 12.0 yr (S.D. 8.7).

Measuring instruments
The following measures were obtained for all participants in the study: physical disability, pain intensity, coping styles, helplessness and depression. These measures were chosen for their suitability for an RA sample and their established reliability and validity.

Dependent variables
Pain measures. Two measures of pain were employed in the present study. The first was the pain subscale of the Arthritis Impact Measurement Scales (AIMS), consisting of four items: (i) the severity of the arthritis pain; (ii) the frequency of severe arthritis pain; (iii) the duration of morning stiffness; and (iv) the frequency of pain in one or more joints [16]. The second was the Visual Analogue Scale (VAS), which is a self-reported pain measure and involves the selection of a point on a 10 cm line marked ‘no pain’ at one extreme and ‘pain as bad as it could be’ at the other extreme [17].

Independent variables
The clinical measures were disease duration, which was recorded in years for all participants, and physical disability, measured by the Health Assessment Questionnaire (HAQ), which is a 20-item measure of physical disability associated with arthritis [18].

Three psychological variables were measured: depression, helplessness and coping. The depression subscale of the AIMS consists of six items. In the present study, one item was deleted because of its potential for mood induction (‘How often do you feel that others would be better off if you were dead?’) [12]. The Arthritis Helplessness Index (AHI) consists of 15 items designed to assess patients’ perceptions of loss of control in association with their RA [19]. The Vanderbilt Pain Management Inventory (VPMI) is an 18-item measure that assesses the frequency with which chronic pain patients use coping strategies when their pain reaches a moderate or greater level of intensity [9]. The VPMI consists of two internally reliable scales: Active Coping and Passive Coping.

Statistical analysis
Statistical analyses were conducted using SPSS for Windows. Descriptive statistics were obtained for all measures. No outliers were detected. Pearson correlation coefficients were computed to evaluate the association between measures. Hierarchical multiple regression analysis was used to predict pain from demographic, clinical and psychological variables. AMOS (Analysis of Moment Structures) [20] path analysis was also used to further examine the relationship among the independent variables in their prediction of pain.

Results

Descriptive statistics
Table 1 summarizes the clinical and psychological variables obtained for all participants. The scores for all main variables are similar to those of the RA population in general. The two pain measures (AIMS and VAS) were highly correlated ($r = 0.76$) and gave comparable results in statistical analyses. In order to avoid multicollinearity, only the VAS results will be reported here. The pain measure correlated highest with passive coping ($r = 0.61$, $P < 0.01$), and was followed by physical disability (HAQ) ($r = 0.49$, $P < 0.01$), depression ($r = 0.48$, $P < 0.01$) and helplessness (AHI) ($r = 0.39$, $P < 0.01$).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>S.D.</th>
<th>Cronbach’s alpha</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Possible range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration (yr)</td>
<td>12.02</td>
<td>8.7</td>
<td>N/A**</td>
<td>10.00</td>
<td>0.50</td>
<td>45.00</td>
<td>n.a.</td>
</tr>
<tr>
<td>VAS (cm)</td>
<td>4.26</td>
<td>2.5</td>
<td>N/A**</td>
<td>3.80</td>
<td>0.00</td>
<td>10.00</td>
<td>0–10</td>
</tr>
<tr>
<td>HAQ</td>
<td>0.82</td>
<td>0.5</td>
<td>0.93</td>
<td>0.70</td>
<td>0.00</td>
<td>2.60</td>
<td>0–3</td>
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<td>Psychological</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>AIMS depression</td>
<td>2.06</td>
<td>1.2</td>
<td>0.90</td>
<td>2.00</td>
<td>0.00</td>
<td>6.00</td>
<td>0–10</td>
</tr>
<tr>
<td>AHI</td>
<td>33.99</td>
<td>4.5</td>
<td>0.67</td>
<td>34.00</td>
<td>21.00</td>
<td>44.00</td>
<td>15–60</td>
</tr>
<tr>
<td>AC</td>
<td>22.19</td>
<td>4.7</td>
<td>0.73</td>
<td>23.00</td>
<td>9.00</td>
<td>31.00</td>
<td>7–35</td>
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<tr>
<td>PC</td>
<td>26.44</td>
<td>8.6</td>
<td>0.89</td>
<td>26.00</td>
<td>11.00</td>
<td>52.00</td>
<td>11–55</td>
</tr>
</tbody>
</table>

AC = active coping; PC = passive coping; n.a. = not applicable.
Examination of the direct and indirect effects indicated that the indirect contributions made by the passive coping variable to pain and depression ($r^2 = 0.19$ and 0.21, respectively) were similar in magnitude to the direct effect of physical disability on both dependent variables ($r^2 = 0.22$ and 0.20, respectively). Helplessness made a very small contribution to the indirect effect of physical disability for both pain and depression ($r^2 = 0.078$ and 0.085, respectively). These results indicate that passive coping is a better predictor of pain and depression than is helplessness. Helplessness is a mediator between physical disability and passive coping, whereas passive coping mediates between physical disability and pain (and depression) (Fig. 1).

Discussion

The present study of 111 RA participants examined the association between coping and pain and the impacts of demographic, clinical and psychological variables on that relationship. The strongest links with pain, in order of significant correlations, were found to be passive coping, physical disability, depression and helplessness. Consistent with other studies, greater pain was detected in an increased use of passive coping, the severity of physical disability, depression and helplessness [4, 9, 21]. Physical disability and passive coping were the only significant predictors of pain. Physical disability is an outcome of the underlying disease process and is closely linked to pain [21].

In this study, depression appears to be an outcome measure independent of pain. This unexpected finding is in contrast to the general view that depression and pain are linked in a cause-effect relationship [13]. Furthermore, the impact of physical disability, both directly and indirectly through the effects of the psychological measures of helplessness and passive coping on depression, was similar in magnitude to the impact on pain. These results suggest that depression is as important an outcome of the disease as pain.

The role of helplessness as a mediator between the physical disability and the outcome measures in this study offers support to the existing body of research [8]. However, helplessness was a significant mediator only in conjunction with passive coping.

In this study, passive coping has emerged as a primary psychological predictor of both pain and depression, as well as the mediator of the impact of physical disability on both pain and depression. It appears to have a more significant role in relation to pain than either helplessness or depression. Passive coping consists of strategies such as praying, giving up social activities and relying on health professionals for pain relief, all of which typify the lack of control over the condition. As such, passive coping is deemed maladaptive, i.e. detrimental to the health outcomes of RA sufferers. Passive coping is actually a non-coping strategy.

Factors that may influence the extent to which passive coping may become maladaptive are the severity of the disease, the nature of RA pain, the level of physical

**Fig. 1.** Path model: statistically significant path coefficients.

**Predictors of pain**

In order to predict the variance of pain, independent variables were entered into hierarchical regression analyses in the following successive conceptual blocks: (i) demographic variables (to control for background factors); (ii) clinical variables; (iii) psychological variables. This order was based on the theoretical position that RA is primarily a physical condition with additional psychological aspects. Individual variables were then removed from each block based on the lack of significant prediction. In a final multiple regression analysis, the only significant predictors of pain were physical disability ($t = 2.134, P = 0.035$) and passive coping ($t = 3.546$, $P = 0.001$), accounting for 40% of the variance of pain.

Path analysis is an extension of multiple regression that goes beyond prediction and examines the relationship between independent variables in order to identify the direct and indirect effects they have on the dependent variables within a non-experimental design. Having identified physical disability and passive coping as the two key predictors, the primary concern was to identify the strength of their influence on pain and to determine the additional roles of helplessness and depression. Several path models were tested. The best-fitting path model is shown in Fig. 1 together with its statistically significant path coefficients.

With regard to fit statistics, a $\chi^2$ test was not significant ($\chi^2 = 3.897$, $P = 0.273$), which supports lack of deviation from the path model. The goodness-of-fit index (0.986) indicated an excellent fit without becoming a saturated model. The root mean square residual (0.052) indicated a small amount of unaccounted variance in the model and therefore a close fit of the model. The proportion of predicted variance was about the same for pain and depression ($r^2 = 0.488$ and 0.495, respectively). This predicted variance consisted of the direct effect of physical disability and its indirect effects via the psychological variables of helplessness and passive coping.
disability and the treatment programme. RA is unpredictable because it involves random flare-ups. Patients are realistically unable to control their RA.

The treatment of RA has been predominantly pharmacological to date. Consequently, patients typically rely on external resources, such as medication and health professionals, rather than their own internal resources. For example, health professionals may recommend that patients rest when their pain is severe [9]. It is quite likely that patients generalize that advice to different levels of disease activities and avoid physical activities irrespective of pain intensity. Therefore, some passive coping strategies may, in fact, be a sign of compliance with treatment. Finally, increased physical disability in itself may render a person less able to use active coping strategies, which are commonly behavioural in nature.

Several limitations of the present results should be noted. The cross-sectional design we employed precludes for the assessment of active and passive coping strategies, which are commonly behavioural in nature. The cross-sectional design we employed precludes for the assessment of active and passive coping strategies, which are commonly behavioural in nature.

The authors are currently working on a longitudinal study which will map the coping patterns in relation to pain over time in order to determine the effectiveness of patients’ coping strategies.

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References