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Original Article

The relationship between disease-related fear, quality of life, and psychological status in patients with rheumatoid arthritis

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Abstract

Aim: Rheumatoid arthritis (RA) causes inflammation, disability, and psychosocial burden. Patients often experience anxiety, depression, and disease-related fears, which may affect quality of life (QoL) and treatment adherence. This study examined the relationship between disease activity, psychological status, QoL, and disease-related fear using the Fear Assessment in Inflammatory Rheumatic Diseases (FAIR) questionnaire.
Materials and Methods: Thirty-four patients with RA were included. Disease activity was assessed with the Disease Activity Score 28 (DAS28), pain with the Visual Analogue Scale (VAS), psychological status with the Hospital Anxiety and Depression Scale (HADS), and functional status with the Health Assessment Questionnaire (HAQ). QoL was measured using the Short Form-36 (SF-36), and fear levels were assessed with the FAIR questionnaire. Data were analyzed statistically.
Results: The majority of participants were female (91.2%). The mean DAS28 was 3.50 ± 1.18, and the mean VAS score was 46.68 ± 29.14, showing a significant correlation (r = 0.507, p = 0.002). Mean HADS-anxiety and HADS-depression scores were 8.8 ± 4.24 and 8.0 ± 4.80, respectively, and were positively correlated (r = 0.475, p = 0.005), but neither correlated with DAS28. Within the SF-36, Bodily Pain (BP) and Role Emotional (RE) domains correlated negatively with DAS28 (r = –0.52 and –0.43). Vitality, General Health, and Mental Health domains correlated negatively with HADS-depression (r = –0.62, –0.58, –0.38). The mean FAIR score was 61.4 ± 21.3, correlating with VAS (r = 0.347, p = 0.044) and borderline with HADS-anxiety (r = 0.33, p = 0.054), but not with DAS28, treatment type, or age.
Conclusion: In RA, disease activity was associated with pain and selected QoL domains, while disease-related fear was more strongly linked to subjective pain and anxiety than to objective inflammatory activity. Addressing psychological factors alongside disease control may improve patient outcomes.

Keywords: Rheumatoid arthritis, depression, anxiety, fear, quality of life

INTRODUCTION

Rheumatoid arthritis (RA) is a common autoimmune disorder characterized by chronic joint inflammation that can lead to progressive joint damage (1). It affects approximately five in every 1,000 adults worldwide and is two to three times more prevalent in women than in men. The incidence increases markedly in the sixth decade of life. RA has been associated with substantial disability, work incapacity, and increased mortality (2). Advances in the understanding of its pathophysiology, along with the development of improved therapies and outcome measures, have significantly improved prognosis (1,2). Nevertheless, RA continues to cause progressive joint destruction, systemic complications, and considerable impact on patients' quality of life (2).

The etiology of RA remains incompletely understood, but evidence supports a multifactorial process involving genetic and environmental factors. Specific genetic associations include HLA class II alleles carrying the "shared epitope," which confer the strongest susceptibility (3). Additional immune-regulatory loci and gene–gene or gene–environment interactions also contribute (4). Environmental risk factors include smoking, periodontitis, alterations in the gut, oral, and pulmonary microbiome, and

certain viral infections (4–6).

Pathologically, RA is marked by infiltration of the synovial membrane with T cells, B cells, and monocytes. This results in synovial inflammation and hyperplasia, leading to pannus formation. The pannus invades adjacent bone and cartilage, causing erosion, cartilage loss, and ultimately joint deformity (7–9).

Living with a chronic disease such as RA often involves significant psychological challenges. RA is associated with systemic manifestations, including psychological disorders. Research suggests that cognitive dysfunction and depression can arise as systemic consequences of RA-related inflammation affecting the brain (10). The prevalence of depression and anxiety is high among patients with RA (11). In one study, 17.6% of participants reported anxiety symptoms and 27.7% reported depressive symptoms.

Although one multivariable analysis found that overall objective disease activity, measured by the Disease Activity Score 28 (DAS28), was not independently associated with anxiety or depression, several factors showed significant associations. In particular, the severity of the Patient Global Assessment (PGA), a component of the DAS28, was strongly linked to both anxiety and depression. This suggests that patient self-assessment, which reflects elements such as pain and disability, is closely related to psychological symptoms. The association between anxiety and depression, as measured by the Hospital Anxiety and Depression Scale (HADS), was statistically significant and independent of physical disability assessed by the Health Assessment Questionnaire Disability Index (HAQ-DI). Patients with HAQ-DI scores above 0.5 were significantly more likely to report anxiety and depressive symptoms (12).

Quality of life in RA is further influenced by the chronic and unpredictable nature of the disease, which affects both physical and psychological well-being (13). Studies of chronic rheumatic diseases have shown that patients frequently experience disease-related fears, particularly regarding deformity and treatment. These fears are especially prevalent in RA and ankylosing spondylitis (AS) (13,14).

Beyond formal diagnoses of anxiety and depression, patients with RA also experience condition-specific fears. A systematic review reported that fears were present in 38.4% of analyzed articles concerning RA patients. The most frequently reported fears related to pharmacological therapy (50%), followed by disability and disease progression (28.1%). Fears about medications often include concerns about side effects, particularly long-term effects, and fear of treatment failure. Patients' beliefs about RA and its potential consequences are closely linked to the perceived impact of the disease, especially its emotional and psychological burden (12). Beliefs such as helplessness or expectations of severe consequences are associated with poorer functional outcomes (15,16). Furthermore, cultural background, nationality, and ethnicity can influence these beliefs and fears, shaping perceptions of disease causation, trust in physicians, and attitudes toward treatment (17,18). Health professionals are therefore encouraged to identify and address unfounded fears or misconceptions that may exacerbate the psychological burden of RA. Specific fears, such as fear-avoidance beliefs regarding physical activity, have also been studied and are associated with pain severity, perceived general health, and self-efficacy (19).

Understanding the complex interplay between disease activity components such as PGA, functional status, condition-specific fears (e.g., medication and disability), and patients' subjective beliefs is essential for comprehensively addressing the burden of RA, including its significant psychological dimension. The aim of this study was to examine the relationship between fear, psychological status (anxiety and depression), quality of life, and treatment in patients with RA using the FAIR questionnaire.

MATERIALS AND METHODS

This study was conducted at the Department of Rheumatology, Çukurova University Faculty of Medicine. Individuals diagnosed with RA according to the ACR/EULAR classification criteria who visited the rheumatology outpatient clinic between January and June 2019 were enrolled. All participants underwent routine clinical assessments. Disease activity was evaluated using the DAS28. Pain levels were assessed with the Visual Analogue Scale (VAS), which is incorporated in the DAS28. Clinical and laboratory data were obtained from patient records, and demographic characteristics such as age, sex, and educational level were also collected. Methotrexate, leflunomide, hydroxychloroquine, sulfasalazine, and steroids were grouped as conventional synthetic disease-modifying antirheumatic drugs (csDMARDs). Anti-TNF agents, anti-IL-6, and rituximab were referred to as biologic DMARDs (bDMARDs). Written informed consent was obtained from all participants.

Psychological status was assessed using the HADS, a 14-item self-report questionnaire comprising two subscales: anxiety (HADS-A) and depression (HADS-D). Each subscale includes seven items scored from 0 to 3, with higher scores indicating more severe symptoms (20). Functional status was evaluated using the Health Assessment Questionnaire (HAQ), which measures difficulty in activities of daily living across eight domains, with scores ranging from 0 (no disability) to 3 (severe disability) (21). Health-related quality of life was assessed using the Short Form-36 Health Survey (SF-36), a 36-item instrument evaluating eight domains: Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH). Scores range from 0 to 100, with higher scores reflecting better health status (22).

The Fear Assessment in Inflammatory Rheumatic Diseases (FAIR) questionnaire was developed by Gossec et al. to assess disease-related fears in patients with AS and RA (23). A validated Turkish version of the questionnaire is also available

(24). In this study, the FAIR scale was administered to evaluate patients' fear levels. To examine factors associated with fear, quality of life was assessed using the SF-36, psychological status using the HADS, and functional status using the Health Assessment Questionnaire (HAQ).

The Ethics Committee of Cukurova University approved the study protocol (Date = 04.01.2019, Ethical approval number = 84).

Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 20. Descriptive statistics were expressed as mean ± standard deviation (SD) for continuous variables and as frequencies and percentages for categorical variables. The Shapiro–Wilk test was applied to assess normality of distribution. Correlations were analyzed using Pearson's or Spearman's correlation coefficients, depending on data distribution. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 34 patients were included in the study. Thirty-one patients (91.2%) were female and three (8.8%) were male. The mean age of the patients was 60.7 ± 10.3 years. The mean disease duration was 9.4 ± 6.9 years. Twenty-three patients (67.6%) were receiving csDMARDs, while 11 patients (32.4%) were treated with bDMARDs. The mean DAS28 was 3.33 ± 1.2 in the csDMARD group and 3.84 ± 0.9 in the bDMARD group. No statistically significant difference was observed between the treatment groups (p = 0.247). Across the total cohort, the mean DAS28 score was 3.50 ± 1.18, and the mean VAS score was 46.68 ± 29.14. DAS28 and VAS scores were positively correlated (r = 0.507; 95% CI: 0.204–0.722; p = 0.002).

Regarding psychological status, the mean HADS-anxiety (HADS-A) score was 8.8, and the mean HADS-depression (HADS-D) score was 8.0. A statistically significant positive correlation was found between HADS-A and HADS-D scores (r = 0.475; 95% CI: 0.163–0.701; p = 0.005). However, no significant correlation was observed between each score and DAS28.

SF-36 domain scores are presented in Table 1. Correlation analysis revealed significant associations between SF-36 domains and clinical parameters, including DAS28, HADS-A, and HADS-D. Among SF-36 domains, Vitality (VT), General Health (GH), and Mental Health (MH) showed the strongest negative correlations with HADS-D: VT (r = –0.62; 95% CI: –0.80 to –0.35), GH (r = –0.58; 95% CI: –0.77 to –0.29), and MH (r = –0.38; 95% CI: –0.65 to –0.04). In addition, Bodily Pain (BP) and Role Emotional (RE) domains were significantly correlated with DAS28: BP (r = –0.52; 95% CI: –0.74 to –0.21) and RE (r = –0.43; 95% CI: –0.68 to –0.09). These findings indicate that impaired physical functioning and psychosocial well-being were closely associated with both inflammatory activity and psychological burden in RA patients (Table 1).

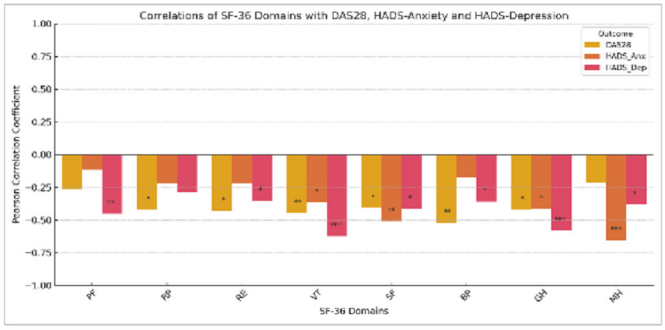
Table 1. Mean SF-36 domain scores of the patients

SF-36 Domain	Mean	SD
Physical Functioning (PF)	61.2	28.5
Role Physical (RP)	45.6	42.9
Role Emotional (RE)	47.1	42.8
Vitality (VT)	38.5	18.0
Social Functioning (SF)	61.6	27.0
Bodily Pain (BP)	54.1	27.1
General Health (GH)	39.1	19.8
Mental Health (MH)	49.4	23.6

The mean FEAR score across the cohort was 61.4 ± 21.3. The relationship between FEAR scores, disease activity, and pain severity was assessed using Spearman correlation analysis. A positive but non-significant correlation was observed between FEAR and DAS28 scores (r = 0.236; 95% CI: –0.11 to 0.53; p = 0.178). In contrast, FEAR scores showed a statistically significant positive correlation with patient-reported VAS scores (r = 0.347; 95% CI: 0.01–0.61; p = 0.044).

When stratified by treatment regimen, patients receiving biologic therapy had slightly higher FEAR scores than those treated with conventional synthetic DMARDs (63.4 ± 18.9 vs. 60.5 ± 22.6), although this difference was not statistically significant (p = 0.705). Biologic users were also older on average (66.1 vs. 58.2 years); however, no significant correlation was identified between age and FEAR score (r = 0.015; 95% CI: –0.34 to 0.36; p = 0.934).

The FEAR score demonstrated trends towards moderate positive correlation with HADS-anxiety (r = 0.33; 95% CI: –0.02 to 0.61) (p = 0.054). In contrast, correlations with HADS-depression were weaker and non-significant (r = 0.24; 95% CI: –0.12 to 0.54; p = 0.17) (Figure 1).



* → p < 0.05, ** → p < 0.01, *** → p < 0.001

Figure 1. Correlations of SF-36 domain scores with DAS28, HADS-Anxiety, and HADS-Depression

DISCUSSION

This study aimed to evaluate the relationship between disease activity, psychological well-being, quality of life, and illness-related fear in patients with RA. Our findings demonstrated that DAS28 scores were significantly negatively correlated with the SF-36 BP and RE domains. In addition, HADS-D scores were negatively correlated with the VT, GH, and MH domains. These results highlight that RA impacts both the physical and psychosocial dimensions of patients' well-being.

RA exerts a substantial effect on health-related quality of life (HRQoL), encompassing both physical and mental health. Previous studies consistently report that RA patients score lower in the physical health domains—PF, RP, BP, and GH—than in the mental health domains—VT, SF, RE, and MH (25). Moreover, each one-unit increase in DAS28 has been associated with a 3.0-point decrease in physical health domain scores and a 0.04-point decrease in mental health domain scores (26).

With respect to psychological well-being, earlier research has shown significant associations between higher disease activity and increased anxiety and depression scores in RA patients, as measured by the HADS (27). In contrast, our study did not observe such direct correlations, which may be attributable to the relatively small sample size. However, we did identify significant associations between lower HRQoL scores and higher depression scores, suggesting an indirect link between disease activity and psychological distress.

Taken together, our findings, consistent with existing literature, underscore that increased disease activity in RA is associated with deterioration across both physical and mental domains of quality of life. Importantly, effective control of disease activity not only alleviates pain but also enhances mental well-being, highlighting the need for holistic treatment strategies that address both the physical and psychological burden of RA.

When examining the relationship between disease-related fear and disease activity, no statistically significant association was observed between DAS28 and FEAR scores. In contrast, patient-reported VAS scores were positively correlated with FEAR scores, suggesting that patients' subjective perception of their disease, rather than objective measures of activity, plays a more prominent role in shaping illness-related fear. Moreover, HADS-Anxiety score were trend towards correlated with disease related fear, whereas no significant correlation was found between FEAR scores and HADS-Depression. These findings may indicate that fear in RA patients is more closely linked to anxiety than to depressive symptoms. No significant associations were identified between FEAR scores and either patient age or treatment regimen. Interestingly, fear related to potential adverse effects of biologic therapies appeared to diminish after the initial treatment period.

Currently, no widely used objective scale exists for assessing disease-related fear in chronic inflammatory rheumatic diseases. The FAIR scale, developed by Gossec et al. in 2018 (23), has addressed this gap. Although no comparable studies have yet been conducted in RA, research in AS has produced mixed findings. One study reported no significant association between BASDAI and FAIR scores (24), whereas another by Dinçer et al. identified a positive correlation between these measures (28). Notably, both studies, consistent with our results, demonstrated that HADS-Anxiety scores were significantly correlated with disease-related fear.

The assessment of fear in patients is inherently subjective, and most available studies have involved small cohorts, limiting the robustness of evidence in this field. A review examining fear in RA patients, which assessed general beliefs rather than using a validated scale, reported that the most prominent concerns were related to pharmacological treatments, followed by disease progression and disability (29). Similar to other inflammatory arthritides, rheumatoid arthritis is a chronic condition with lasting consequences, which may exacerbate patient concerns. Therefore, addressing patients' fears should be considered a critical component of strategies aimed at improving quality of life.

This study has several limitations. The most important are the small sample size and its cross-sectional design. The small sample size limits the projection of the results to the general population. Furthermore, due to the cross-sectional design of the study, it is difficult to establish any causality between the findings. Larger, prospective studies are required to assess longitudinal changes in treatment, disease activity, quality-of-life measures, and fear indices, which would provide more robust evidence and strengthen the literature. A notable strength of the present study is that, to our knowledge, the FAIR scale has not previously been evaluated in patients with rheumatoid arthritis, making our findings a novel contribution to the existing body of knowledge.

CONCLUSION

In conclusion, in RA patients, disease activity was correlated with pain severity and certain quality-of-life domains, while anxiety and depression were interrelated but not directly associated with disease activity. The mean FEAR score was moderate and demonstrated significant associations with patient-reported pain and anxiety, but not with objective disease activity. These findings indicate that disease-related fear in RA is influenced more by subjective symptoms and emotional state than by measurable inflammation, underscoring the need to integrate psychological support alongside physical disease control in routine management.

Conflict of Interests
The authors declare that there is no conflict of interest in the study.

Financial Disclosure
The authors declare that they have received no financial support for the study.

Ethical Approval
The Ethics Committee of Cukurova University approved the study rotocol (Date: 04.01.2019, Ethical approval number = 84).

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