

ORIGINAL ARTICLE

Affective temperaments in patients with rheumatoid arthritis

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Abstract

Aim: The issue whether patients with rheumatoid arthritis (RA) have certain personality characteristics has been discussed. The temperament and personality characteristics of the patient may influence success in competing with stress. The aims of the study were to determine the most common dominant affective temperaments in patients with RA and whether temperament affects the disability.

Methods: A total of 88 patients with RA participated in this cross-sectional study. The Turkish version of the Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto Questionnaire scale was used to determine the dominant affective temperament, and the Health Assessment Questionnaire (HAQ) was used to determine functional ability.

Results: Depressive temperament was found in 52 patients (59.1%) as the most common dominant affective temperament followed by irritable temperament in 17 patients (19.3%). There was no significant difference in HAQ scores of the patients according to the subscales of the Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto Questionnaire. Disability levels of patients were found as low-level disability in 65 patients and high-level disability in 23 patients. Multiple linear regression analysis indicated that HAQ score was not associated with gender, body mass index, duration of the disease, depressive temperament, anxious temperament, cyclothymic temperament or irritable temperament.

Conclusion: The current study showed that depressive and irritable temperaments are the most common affective temperaments in patients with RA. The dominant affective temperament does not affect the functional ability of patients with RA.

Key words: affective temperament, depression, functional ability, Health Assessment Questionnaire, rheumatoid arthritis.

INTRODUCTION

Rheumatoid arthritis (RA) is a systemic chronic autoimmune inflammatory disorder affecting primarily cartilage and bone of predominantly small and middle-sized joints. In addition, several organs such as lung, vessels, kidney and the hematopoietic system may be

involved and the inflammatory process leads to loss of function in these patients.¹ RA affects all aspects of life and has a profound impact on the social, economic and psychological domains of the patient's life.^{2,3} Despite substantial advances in medical treatment, the combination of pain, long-term drug use, side effects of medications, fatigue, incapacity to work, self image, mood disorders and functional disability causes serious psychosocial consequences for these patients.^{4,5}

Definitions of functional disability have been made by various authors but in a recent review, Leonardi *et al.*⁶ proposed this definition: 'Disability is a difficulty

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in functioning at the body, person or societal levels, in one or more life domains, as experienced by an individual with a health condition in interaction with contextual factors'. An important measure for evaluation of the prevention of disability is the Health Assessment Questionnaire (HAQ). It is the best predictor of mortality, work disability, joint replacement and medical costs. It is an effective measure in RA.⁷

The word temperament comprises emotions, cognition and behaviors from the very first years of life of an individual. The origin of the concept of temperament is from Hippocratic times, but Kraepelin was the first to introduce and use temperament in clinical psychiatry. It is believed that temperament is heritable and is relatively stable throughout life.⁸ Affective temperament describes attitudes and behaviors which stand on structural, genetic and biological bases.⁹ It is possible to see it as a feature of personality without affective disorders or a basis of affective disorders, like depression or bipolar disease, throughout life.⁸ Five dominant affective temperaments are described: depressive, hyperthymic, cyclothymic, irritable and anxious.¹⁰

Psychological factors such as coping, anxiety and depression play a great role between RA and perceived health status.^{11–13} Anxiety and depression are at the same time the substructures of temperament.⁸ The relation between temperament of the patient and the chronic, auto-inflammatory and autoimmune diseases such as RA has attracted the attention of researchers in recent years. As both temperament and RA have a genetic basis, this raises the question whether there is a link between these two conditions. The issue whether RA patients have certain personality characteristics has been widely discussed; however, the data are not satisfying. The role of stress in the etiology of RA has not been understood completely; but the temperament and personality characteristics of the patient may influence success in competing with stress.

The aims of the study were to determine the most common dominant affective temperaments in RA patients using the Turkish version of the Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto Questionnaire (TEMPS-A) scale, and whether temperament affects the disability.

METHODS

A total of 105 consecutive RA patients were evaluated for participation in this study. All of them were recruited from our rheumatology outpatient clinic where they were regularly followed-up and fulfilled the

American College of Rheumatology criteria for the classification of RA. Exclusion criteria were based on the inability of the patient to reliably respond to questionnaires in the interview. Of 105 subjects, 17 were excluded from the study because of inability to understand and respond to the questions. A total of 88 subjects (76 female, 12 male) were included in this cross-sectional study. The mean age was 48.0 ± 10.6 years and the mean disease duration was 5.2 ± 5.1 years (Table 1). Information on disease duration was derived from medical records (Table 1). None of the patients had histories of mental disorders, brain or nervous system disorders. The present study was approved by our hospital local ethics committee and all the patients provided written informed consent.

The Turkish version of TEMPS-A scale was used to determine the dominant affective temperament in the subjects. Volunteers were asked to complete the TEMPS-A. The validity and reliability of TEMPS-A has been proven in many languages, and in Turkish by Vahip *et al.*¹⁰ The Turkish version of the scale consists of 99 items. It requires 15–45 min to complete the scale. This scale is a self-report instrument consisting of five subscales. Its 99 constituent items inquire about the subject's whole life about traits along depressive, cyclothymic, hyperthymic, irritable and anxious lines. Individuals answer 'yes' or 'no' when considering their life experience. Cut-off scores to determine the dominant temperament are 13 for depressive mood (18 items), 18 for cyclothymic (19 items), 20 for hyperthymic (20 items), 13 for irritable (18 items) and 18 for anxious (24 items). It is possible to have more than one dominant affective temperament.^{10,14,15}

Disability was measured with the Stanford HAQ. This index includes questions about the ability of patients to perform 20 activities of daily living. Four response categories are available for each question: without any difficulty (score 0), with some difficulty (score 1), with

Table 1 Demographic and clinical characteristics of rheumatoid arthritis patients

| | Mean | SD |
|---------------------------|-------|------|
| Age (years) | 48.0 | 10.6 |
| Height (cm) | 160.9 | 7.8 |
| Weight (kg) | 73.5 | 13.0 |
| BMI (kg/m ²) | 28.3 | 4.7 |
| Disease duration (years) | 8.0 | 7.1 |
| Time to diagnosis (years) | 5.2 | 5.1 |
| HAQ | 0.59 | 0.75 |

SD, standard deviation; BMI, body mass index, HAQ, Health Assessment Questionnaire.

much difficulty (score 2) or unable to do (score 3). The total HAQ score, with range 0.0 (best possible function) to 3.0 (worst function) is the mean of the scores for the eight categories.⁴ Scores of 0–1 are generally considered to represent mild to moderate difficulty, 1–2 moderate to severe disability, and 2–3 severe to very severe disability.¹⁶ In this study, two disability levels were defined: moderate to very severe disability was accepted as a high-level disability; mild to moderate difficulty was accepted as a low-level disability.

Arithmetic means and standard deviations (SD) were calculated for each variable assessed. The Mann–Whitney *U*-test was used to analyze the statistical difference between the HAQ scores of the patients with a dominant affective temperament and without this dominant affective temperament. A *P*-value < 0.05 was considered statistically significant. The multiple linear regression analysis (method: stepwise) was used to identify predictors of the HAQ score in relation to the demographic and clinical findings (age, gender, body mass index [BMI], RA duration, dominant affective temperaments). Validity of the final regression model was determined by analysis of variance. The data management software package used was the PASW for Windows (SPSS Inc., Chicago, IL, USA).

RESULTS

From 88 RA patients who were recruited into our study, depressive temperament was found in 52 patients (59.1%) and was the most common dominant affective temperament, followed by irritable temperament in 17 patients (19.3%). Cyclothymic, hyperthymic and anxious temperaments were found to be less common in patients with RA (Table 2).

Seventeen RA patients displayed mixed temperament. Eleven patients had both depressive and irritable temperaments; one had depressive and hyperthymic temperaments. The association of depressive and cyclothymic temperaments was found in one patient.

Table 2 The frequency of dominant affective temperament in rheumatoid arthritis patients

| Temperament | Number (F/M) | Frequency (%) |
|-------------|--------------|---------------|
| Depressive | 52 (49/3) | 59.1 |
| Cyclothymic | 5 (5/0) | 5.7 |
| Hyperthymic | 1 (1/0) | 1.1 |
| Irritable | 17 (15/2) | 19.3 |
| Anxious | 1 (1/0) | 1.1 |

F, female; M, male.

Three patients had a mix of depressive, cyclothymic and irritable temperaments and one patient had all of the affective temperaments except the anxious subscale. There was no significant difference in HAQ scores of the patients according to the subscales of TEMPS-A using Mann–Whitney *U*-test (Table 3).

Disability levels of patients were found as being low level in 65 (F/M: 56/9) patients and high-level in 23 (F/M: 20/3) patients. Multiple linear regression analysis indicated that the HAQ score was not associated with gender, BMI, RA duration, depressive temperament, anxious temperament, cyclothymic temperament or irritable temperament. In contrast, it also revealed that the HAQ score was associated with age ($r^2 = 0.393$, $F = 56.4$, $P = 0.0001$) (Table 4).

DISCUSSION

Using the TEMPS-A Turkish version, this is the first study evaluating affective temperaments in Turkish patients with RA. We found that depressive temperament was the most common dominant affective temperament and there was no significant difference in disability scores of the patients with RA according to the dominant affective temperaments.

In the present study, it was found that depressive (59.1%) and irritable (19.3%) temperaments were the most common temperaments in Turkish patients with

Table 3 Comparisons of HAQ scores of the patients according to the subscales of TEMPS-A

| Subscales of TEMPS-A | HAQ (mean ± SD) | <i>P</i> -value |
|----------------------|-----------------|-----------------|
| Depressive | | |
| No (<i>n</i> = 36) | 0.41 ± 0.54 | > 0.05 |
| Yes (<i>n</i> = 52) | 0.72 ± 0.85 | |
| Cyclothymic | | |
| No (<i>n</i> = 83) | 0.59 ± 0.75 | > 0.05 |
| Yes (<i>n</i> = 5) | 0.64 ± 0.83 | |
| Hyperthymic | | |
| No (<i>n</i> = 87) | 0.60 ± 0.75 | – |
| Yes (<i>n</i> = 1) | 0.00 | |
| Irritable | | |
| No (<i>n</i> = 71) | 0.64 ± 0.78 | > 0.05 |
| Yes (<i>n</i> = 17) | 0.37 ± 0.56 | |
| Anxious | | |
| No (<i>n</i> = 87) | 0.59 ± 0.75 | – |
| Yes (<i>n</i> = 1) | 0.87 | |
| Mixed | | |
| No (<i>n</i> = 71) | 0.65 ± 0.78 | > 0.05 |
| Yes (<i>n</i> = 17) | 0.35 ± 0.56 | |

TEMPS-A, Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto Questionnaire; HAQ, Health Assessment Questionnaire.

Table 4 The regression model for HAQ score

| Model | B | Standard error | β | <i>t</i> | <i>P</i> -value | |
|-------|-----|----------------|---------|----------|-----------------|---------|
| 1 | Age | 0.012 | 0.002 | 0.627 | 7.510 | < 0.001 |

RA. Vahip *et al.*¹⁰ evaluated the validity and reliability of the Turkish version of the TEMPS-A scale. They found that dominant irritable (3.7%), anxious (3.7%) and depressive (3.1%) temperaments were the most common affective temperaments in 658 healthy Turkish subjects, whereas dominant cyclothymic (1.7%) and hyperthymic (1.2%) temperaments were relatively uncommon. Compared with healthy subjects, the depressive and irritable temperaments appeared to be more common in our subjects with RA than in a normal Turkish population. Kurt *et al.*¹⁵ found that depressive temperament was the most common affective temperament in subjects with stroke (17.5%) following by anxious temperament (12.7%).

Depression and anxiety are the most commonly encountered psychological problems in RA patients. Individuals with depressive temperament exhibit low energy, low spirits and negative cognitions. Using different screening methods, the prevalence of depression has been reported to vary between 6–65% in RA patients.¹⁷ The anxious temperament is a lifelong tendency to worry about one's welfare and that of one's immediate kin, and was originally hypothesized to predispose to depression, phobic disorders, and alcohol and sedative use. The prevalence of anxiety among RA patients has been found to be 40% in the literature.¹⁸ The high rate of depressive temperament and low rate of anxious temperament in the present study are dissimilar to the prevalence of depression or anxiety in patients with RA reported in the literature. Affective temperaments are likely to represent liability factors in the subsequent development of affective disorders, like depression. As depression and anxiety symptoms are an important aspect and co-morbidity in RA patients, they cannot really reflect the innate temperament, but are only episodes in which that person is experiencing at that time. Depression and anxiety may be subtypes of temperament or may develop episodically and be treated as co-morbidities of the disease; however, depressive affective temperament, as well as anxious temperament, or any of the three other affective temperaments, are innate in manner, and are transferred through generations by heredity, as the structures of temperament. The rates of depressive (59.1% as the most frequent) and anxious (1.1% as the least frequent) temperaments in the present study may indicate

genetically natural temperaments, but not current depressive or anxious episodes.

Irritable temperament is characterized by a highly unstable mixture of dysthymic and hyperthymic traits and manifests itself in traits such as habitual complaining, overcritical attitudes and angry outbursts.¹⁹ Irritable temperament (19.3%) was the second common dominant affective temperament in Turkish patients with RA in the current study. Cyclothymic temperament is characterized by rapid and unpredictable mood swings between the depressive and the hyperthymic poles.¹⁹ Cyclothymic was found to be the third common affective temperament with a rate of 5.1% in our study. Dominant hyperthymic temperament with a rate of 1.1% was relatively uncommon in our subjects.

Functional disability is one of the factors that affect health-related quality of life. Pain, long-term drug use, inevitable side effects of various medications, fatigue and incapacity to work are the other factors that cause serious psychosocial consequences which can reduce health-related quality of life.^{4,5} We could not find any significant difference in disability scores of patients according to affective temperament subscales, meaning that affective temperaments do not affect functional ability. The functional ability of patients was found to be good in the present study. Considering the mean age, mean disease duration and mean time to diagnosis, patients have displayed a good functional status, indicating that RA, even when diagnosed late, after 3 years, did not affect functional ability. One of the reasons for low functional disability level here could be that all the patients included in this study were regularly followed-up. Although depressive temperament was found as the most frequent dominant affective temperament in the patients in the present study, it was not found to be associated with HAQ.

There are several limitations in the current study. First, the number of cases included in this study was relatively small. Because women are up to three times more likely to develop RA than men, the study included only 12 male patients. Second, because we did not evaluate the current level of depression or anxiety with a scale or interview, the relation between dominant affective temperament and current depression and/or anxiety was not investigated. We did not exclude patients with comorbidities such as diabetes mellitus, hypertension or fibromyalgia from the study. We mainly aimed to evaluate the relationship between disability and temperament. So pain levels and disease activity scales were not evaluated. Future longitudinal studies including the assessment of pain levels, disease activity and current

depression level are necessary to evaluate the effect of the dominant temperament on these parameters.

As a conclusion, the current study shows that depressive and irritable temperaments are the most common dominant affective temperaments in patients with RA and the dominant affective temperament does not affect the functional ability of patients with RA.

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AUTHOR CONTRIBUTIONS

İK, EK, AR, LA are involved in study design; LA, AR, MA, EK, SED are involved in data collection/processing; SED, İK are involved in statistical analysis; AR, SED, MA, EK, İK, LA are involved in report writing.

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