



# STUDYING THE RELEVANCE OF SOME FACTORS THAT INFLUENCE THE QUALITY OF LIFE IN RHEUMATOID ARTHRITIS PATIENTS

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## ABSTRACT

**Objective:** The study was conducted to determine the conditions that may impair the quality of life in patients with rheumatoid arthritis.

**Material and Method:** 75 subjects with the established diagnosis of rheumatoid arthritis according to American College of Rheumatology revised criteria were included in the study. Demographic data, duration of illness and number of hospital admissions were recorded. Patients were psychologically tested in order to assess quality of life, depression and anxiety level.

**Results:** Sociodemographic data and duration of disease

did not significantly influence the quality of life in patients with rheumatoid arthritis. Statistical analyses showed that the presence of anxiety and depression inversely correlate with the domains of quality of life. Moreover, it seems that dimensions of quality of life instrument predict depression and anxiety.

**Conclusion:** Considering that both anxiety and depression are treatable medical conditions and that there are frequently associated with rheumatoid arthritis, a screening for anxiety and depression in rheumatoid arthritis may be mandatory.

**Keywords:** Arthritis, rheumatoid, quality of life, depression, anxiety *Nobel Med 2014; 10(3): 12-17*

## ROMATOİD ARTRİD HASTLARINDA HAYAT KALİTESİNİ BELİRLEYEN BAZI FAKTÖRLERİN GEÇERLİLİĞİ ÇALIŞMASI

### ÖZET

**Amaç:** Bu çalışma romatoid artrit hayat kalitesini düşüren durumlarını belirlemek üzere yapılmıştır.

**Materyal ve Metod:** American College of Rheumatology'nin güncellenmiş kriterlerine göre romatoid artrit teşhisi konulmuş 75 hasta çalışmaya alınmıştır. Hastanın demografik özellikleri, hastalık süresi ve hastane yatış sıklığı bilgileri değerlendirilmiştir. Hastaların hayat kalitesini, depresyon ve anksiyete derecelerini belirlemek için psikolojik test uygulanmıştır.

**Bulgular:** Sosyodemografik verilerin ve hastalığın süresinin romatoid artritli hastalardaki hayat kalitesi üzerinde anlamlı bir etkisi olmadığı bulunmuştur. İstatistiksel analizler, anksiyete ve depresyonun hastaların hayat kalitesini belirleyen alanlarla ters korelasyon gösterdiği saptanmıştır. Ayrıca hayat kalitesi enstrümanının depresyon ve anksiyeteyi öngördüğü gözlemlenmiştir.

**Sonuç:** Anksiyete ve depresyonun tedavi edilebilir hastalıklar olduğu ve sıklıkla romatoid artrit ilişkilerinde göz önünde bulundurulursa, romatoid artrit hastalarında anksiyete ve depresyon taraması yapılması zorunlu hale gelebilir.

**Anahtar Kelimeler:** Artrit, romatoid, hayat kalitesi, depresyon, anksiyete Nobel Med 2014; 10(3): 12-17

### INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune disease that has a progressive course and it consists in irreversible destructions of the joints. Clinically, patients with RA show structural damage of the joints and inflammatory pain caused by chronic lesions. Also, there is a significant impairment in range of motion leading to progressive reduction of functional ability in patients with RA. Regarding the frequency of the disease, RA has a prevalence of 0.5-1.0% in the general population affecting mainly women.<sup>1,2</sup>

RA is a systemic medical condition that can have extra-articular manifestations involving lungs, kidney, eyes cardiovascular and nervous system.<sup>3</sup> Thereby, patients with RA may develop different conditions including coronary artery disease, interstitial lung disease, osteoporosis, vasculitis and various forms of inflammatory eye disease.<sup>4</sup> Scientific reports suggest that the presences of extra-articular manifestation are usually sign of severity in RA and may decrease life expectancy by up to 3-5 years.<sup>5,6</sup> Moreover, it seems that generally, all the patients suffering from RA have a shorter life expectancy with an increased risk of mortality rate. However, the subgroup of individuals with RA and extra-articular complications has a particular poor prognosis.<sup>7,8</sup>

Patients diagnosed with RA usually have complains of chronic pain, stiffness and decreased mobility with significant impact on individual independency. Given the fact that the individual is limited in overall functioning, the quality of life of these patients is fairly impaired.<sup>7</sup> An important goal in non-

pharmacologic management is represented by the improvement of quality of life.<sup>8</sup>

It is important to highlight that RA affects the life of the patients globally and profoundly. Chronic pain and physical limitation can have a significant influence on the functional capacity decreasing social, familial and occupational activities of the individuals. Studies show that after several years, patients diagnosed with RA experience work difficulties and increased job loss due to physical disability.<sup>9</sup> Giving the fact that the onset of the disease is before 40 years old, RA affects many individuals of working age.<sup>10</sup> Furthermore, job loss and functional disability could have a great psychological and economic impact. Some of the patients with RA may also show psychological reactions to the disease, such as depression or anxiety. Also, RA affects many areas of life such as mood and emotions, energy level, sleep, health, occupational performance, social life, hobbies, everyday tasks, personal and social relationships.<sup>11,12</sup>

Regarding the quality of life, it is known that this parameter is worsened in patients with chronic diseases, including RA.<sup>13-15</sup> The factors that influence the quality of life in patients who suffer from RA are not well understood. In the present study, we analysed how different factors dependent or independent of the disease may influence the quality of life, including some demographic factors, duration of the illness and also the presence of depression and anxiety.

### MATERIAL AND METHOD

The patients selected for the present study were recruited from the Department of Rheumatology →

Table 1: Demographic data for the patients included in the study	
Demographic data	n (%)
<b>Gender</b>	<b>n: 75</b>
Men	7 (9%)
Women	68 (91%)
<b>Age (mean)</b>	54.5
Range	17-78
<b>Provenance</b>	
Urban	31 (41%)
Rural	44 (59%)
<b>Marital status</b>	
Married	58 (78%)
Widowed	12 (16%)
Divorced	3 (4%)
Unmarried	2 (2%)
<b>Education</b>	
Secondary school	19 (25%)
High school	46 (61%)
College	10 (13%)
<b>Number of children</b>	
Without children	10 (13%)
one child	17 (23%)
2 children	34 (45%)
3 children	6 (8%)
> 3 children	8 (11%)

Table 2: Duration of the disease and number of hospital admissions in patients included in the study	
Duration of the disease	n (%)
0-12 months	18 (24%)
1-5 years	30 (40%)
6-10 years	16 (21.3%)
>10 years	11 (14.7%)
<b>Number of hospital admissions</b>	
1	17 (22.7%)
1-5	27 (36%)
6-10	9 (12%)
>10	22 (29.3%)

Clinical Rehabilitation Hospital, Iași. 75 patients met the American College of Rheumatology revised criteria.<sup>16</sup> All the patients gave informed consent and the study was approved by the local ethic committee.

Demographic data was recorded for each patient including age, gender, provenance, marital status and number of children. Also, data regarding the duration of the illness and number of hospital admissions were recorded.

For evaluation of the quality of life (QOL), we used the Short Form Health Survey (SF-36). The SF-36 scale is a short form of Medical Outcome Study (Ware, 1994) with 36 items and is used to estimate general health condition from the patient perspective. The form applied has 11 items and measures 8 important parameters for estimating the quality of life such as physical function, physical role, body pain, general health, vitality, social function, emotional role and mental health. The scores are varying from 0 to 100, with greater scores indicating less limitation or discomfort.<sup>17</sup> SF-36 is a reliable scale which is used both in clinical and research purposes and is currently the most recommended instrument for measuring physical function in patients suffering from RA.<sup>18</sup>

For the evaluation of depression in patients with RA we used the Hamilton Rating Scale for Depression-17 (HAMD-17) scale. HAMD-17 is a 17 item questionnaire used to measure depression and is a good indicator for intensity of depression. The scale includes items for evaluation of cognitive, behavioural and somatic aspects. Usually, a score above 14 is a sign of depression and an individual could reach a maximum score of 50.<sup>19</sup> In order to assess the presence of anxiety symptoms and the intensity of anxiety we used Hamilton Anxiety Scale (HAMA). HAMA is a semi-structured interview that comprises items for anxiety and also for somatic and cognitive symptoms associated with anxiety. The total score varies between 0 and 56, and the intensity of anxiety is indicated by a higher score.<sup>20</sup>

### Statistical Analysis

All statistical analyses were conducted with the statistical software package SPSS statistics version 16 (Inc., Chicago, IL, USA). Descriptive statistics were used to describe demographic characteristic of participants at the baseline. The statistical tests used in this study were represented by independent samples t test (for continuous variables), ANOVA one way, Pearson correlations and regression. The statistical significance was indicated by a  $p < 0.05$ . Categorical variables were expressed as frequencies.

## RESULTS

### Demographic data

In the present study 75 patients with RA were included majority of whom were women (91%). Age varied from 17 to 78 years with an average of 54.5 years. Provenance was registered as a dichotomous variable. 59% of all the included patients included had a rural origin (Table 1). Analysis of marital status, which was a parameter registered as a multi-item checklist, showed that most of the patients →

were married (78%). The recording of the number of children was also a multi-item checklist. The statistical analysis showed that the majority of the patients had 2 children (45%). Regarding education status, most of the patients had secondary education (62%) and few (13%) had higher education.

Duration of the disease was recorded as the time between the diagnosis and the inclusion in the study. The majority of the patient had duration of illness between 1 and 5 years (40%) and the few patients (15%) had more than 10 years of disease (Table 2). Regarding the number of hospital admissions, most of the patients had more than one hospital admission. Only 9% of the patients reported between 6 and 10 hospital admissions.

### Demographic data and QOL correlations

The correlation between gender and quality of life did not show statistical significance ( $r=-0.14$ ,  $p=0.22$ ). Regarding marital status, this parameter did not influence the overall scores of QOL ( $t=0.06$ ,  $p=0.94$ ), neither the physical dimension ( $t=-0.333$ ;  $p=0.74$ ) nor the mental dimension ( $t=0.441$ ;  $p=0.66$ ) of the scale scores. The correlation between education and QOL did not show statistical significance [ $F(2,74)=1.122$ ;  $p=0.33$ ].

### Duration of disease and QOL

The duration of the diseases did not influence the total QOL scores ( $F=0.68$ ;  $p=0.56$ ), the physical dimension ( $F=0.841$ ;  $p=0.476$ ) or mental dimension ( $F=0.628$ ;  $p=0.59$ ) of the scale. There was a negative weak correlation between the quality of life and the duration of the disease ( $r=-0.13$ ,  $p=0.25$ ). Also, the results showed a tendency of reduction of QOL scores in patients who had been suffering from RA from 1 to 5 years and more than 10 years (Figure).

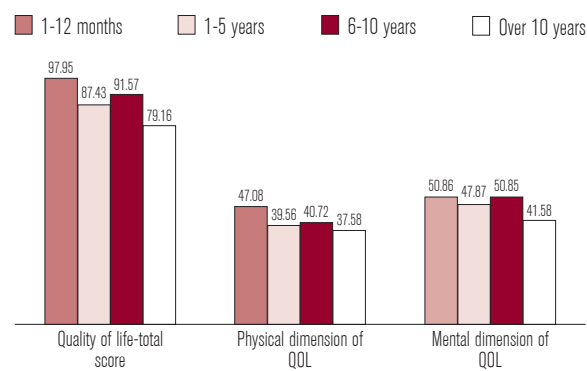
### Depression and QOL dimensions

We analysed the correlation between QOL scores and depression measured with HAMD scale using Pearson correlation. The results indicated a significant negative correlation between the scores of depression scale and QOL scores for all the domains measured with the QOL scale ( $p<0.05$ ), including physical function, physical role, body pain, general health, vitality, social function, emotional role and mental health (Table 3).

The results showed that the higher the intensity of depression was, the lower was the quality of life was in patients with RA.

The analysis of the models of predictors for depression using the predictors physical function,

Quality of life dimensions	r (Depression)	p (Depression)	r (Anxiety)	p (Anxiety)
Physical function	-0.404	<0.001	-0.41	<0.001
Physical role	-0.379	$p=0.001$	-0.34	0.002
Body pain	-0.394	<0.001	-0.37	0.001
General health	-0.502	<0.001	-0.56	<0.001
Vitality	-0.592	<0.001	-0.47	<0.001
Social function	-0.404	<0.001	-0.5	<0.001
Emotional role	-0.555	<0.001	-0.52	<0.001
Mental health	-0.621	<0.001	-0.52	<0.001



**Figure:** Quality of life scores in RA according to disease duration

physical role, body pain, general health, vitality, social function, emotional role and mental health showed statistical significance for all the models of prediction. The best models of regression are indicated below:

1. The predictor physical function explains a significant percent from depression variance (15%) ( $F(1.73) = 14.211$ ;  $p<0.001$ .  $F(1.73) = 14.211$ ).
2. The predictors physical function and physical role explain a significant percent of depression variance (19%),  $F(2.72) = 10.09$ ;  $p<0.001$ .
3. The predictors physical function, physical role, somatic pain and general health explain 26% of the depression variance and the model is statistically significant [ $F(4.70) = 7.63$ ;  $p<0.001$ ].
4. The predictors physical function, physical role, somatic pain, general health and vitality explain 36% of depression variance  $F(5.69) = 9.36$ ;  $p<0.001$ . The predictor vitality explains further 10% of variance depression.
5. The predictors physical function, physical role, somatic pain, general health, vitality, social function, emotional role and mental health explain almost 50% of depression variance  $F(8.66) = 8.841$ ;  $p<0.001$ .

This last model was the most powerful model to explain the depression variance and the mental health predictor was the strongest predictor. →

### Anxiety and QOL dimensions

The correlation between quality of life and anxiety measured with HAMD scale, indicated a significant negative correlation between the scores of depression scale and QOL scores for all the domains measured with the QOL scale ( $p < 0.05$ ) including physical function, physical role, body pain, general health, vitality, social function, emotional role and mental health (Table 3). The results indicated that the higher the intensity of anxiety was, the lower was the quality of life was in patients with RA.

The prediction for anxiety using the predictors physical function, physical role, body pain, general health, vitality, social function, emotional role and mental health showed statistical significance for all the models of prediction. However, the most powerful models for predicting anxiety variance were:

1. The predictors physical function, physical role, somatic pain and general health explain 31% of the anxiety variance and the model has statistical significance  $F(4,70) = 9.36$ ;  $p < 0.001$ .
2. The predictors physical function, physical role, somatic pain, general health, vitality, social function, emotional role and mental health explain 50% of anxiety variance. The predictor mental health has the greatest power of prediction regarding the anxiety criteria.

### DISCUSSION

The analyses of demographic characteristics in patients with RA demonstrated an increase in the prevalence of RA in female gender group (ratio f:m=10:1). Our results are comparable with the data found by other authors who reported increased incidence and prevalence of RA in women when compared to men.<sup>21,22</sup>

The analyses of demographic characteristic of the subjects with RA included in the present study, in relation with the quality of life indicates that, generally these factors did not seem to influence the level of perception of the individuals quality of life. Neither gender nor marital status had an impact on the general QOL scores or the dimensions of the scale scores. However, a slight difference was seen in how education was associated with the quality of life in patients suffering from RA. Thereby, a higher education was correlated with an increase in scores of QOL scale, but there was no statistical significance.

When analysing the duration of the disease in relation to quality of life, we obtained a weak negative

correlation between quality of life and duration of disease without statistical significance. The results of the present study did not endorse the fact that duration of the disease influence the quality of life.

Regarding the psychological status analysis, we found that both anxiety and depression symptoms were negatively correlated with the subdomain QOL scores. The results showed that the more depressed or anxious person was the lower the quality of life was. As expected, the most powerful correlation was found in mental health and depression ( $r = -0.62$ ,  $p < 0.001$ ), while the weakest correlation was expressed by the physical role and depression ( $r = -0.37$ ,  $p = 0.001$ ). Analysing the models for predicting depression, we have found that the most powerful predictor for depression was represented by mental health parameter.

Generally, studies show that the main affected areas in RA patients are pain, fatigue and depression.<sup>23</sup> Also, depression is usually found in patients suffering from chronic condition and it is an aggravating factor for the evolution of the illness.<sup>24</sup> In patients with RA, depression is a factor that worsens the prognosis and increases the risk of mortality.<sup>25</sup> Also, depression is a frequent comorbidity found in RA patients, almost four-time than in general population and the screening for the depression seems warranted.<sup>20,22</sup>

Anxiety level of the RA patients was measured with HAMA scale. The Pearson correlation showed a significant negative correlation between the HAMA scale scores and the QOL subscale scores. Interestingly, all the subdomains showed a homogenous and medium power of correlation with depression. Regarding prediction of anxiety, as in depression, mental health was found to be the most powerful predictor ( $r = -0.52$ ,  $p < 0.001$ ). An increased anxiety state in RA could have multiple causes, such as chronic inflammation, dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, socioeconomic decline, functional and social impairment associated with RA as well as psychological factor resulted from suffering from a chronic disease.<sup>26-28</sup>

### CONCLUSION

The present study analysed the factors that may influence the quality of life in patients suffering from RA. We did not find a significant influence of demographic factors on the quality of life in these patients. Also, it seemed that the duration of the disease did not have an important impact on the level of quality of life perceived, either. However, →

the presences of psychological disturbances, such as anxiety or depression greatly influenced the QOL scores. Moreover, the QOL dimensions predicted the depression and the anxiety criteria. Considering that both anxiety and depression are treatable medical

condition, a screening for anxiety and depression in RA may be mandatory.

\* The authors declare that there are no conflicts of interest.



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	<b>DELIVERING DATE:</b> 11 / 02 / 2014 • <b>ACCEPTED DATE:</b> 06 / 05 / 2014

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