



Assessing quality of life among sample of iraqi patients with rheumatoid arthritis

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ABSTRACT

Rheumatoid arthritis is one of the common chronic disease, which lead to great disability and chronic pain, and has a main adverse economic and social effect upon patients. The reason for the addition of quality of life as a pointer for health outcome result is attributed to the affectability of this measure for the evaluation of patient's health status after taken treatment and its health outcome. The purpose of the current study was to assess quality of life among a sample of Iraqi patients with rheumatoid arthritis and to determine the possible association between health's related quality of life and some patient-certain factors. This study is a cross-sectional study carried out on 250 already diagnosed rheumatoid arthritis patients who attended Baghdad Teaching Hospital/Medical City/Rheumatology department. The mean age of the patients was (50.8 ± 13.1 years). The Arabic version of the (WHOQOL-BREF) Questionnaire was used to measure Quality of life. The results of the current study showed that rheumatoid arthritis has a significant effect on the quality of life of patients. The mean of the total quality of life score was 46.9 ± 9.7. Older age was associated with the reduced psychological and environmental score. Female patients had high physical and psychological score compared to male patients. Higher education levels worked patients directly predict the elevated quality of life score. High disease activity associated with low quality of life score. Future studies should investigate how interventional approaches addressing these predictors may lead to improve quality of life among rheumatoid arthritis patients and their impression on disease control.

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INTRODUCTION

Rheumatoid arthritis (RA) is a chronic, multisystem autoimmune and inflammatory illness, which usually affects the small joints of the hands and feet, often symmetrically, it is typically presented with constant pain, progressive joint destruction, stiffness and deformity with significant disability (Söderlin *et al.*, 2003) which can lead to functional disability (Sangha, 2000; Plasqui, 2008) and depressive symptoms (Sharpe *et al.*, 2001; Kojima *et al.*, 2009). These changes may have a negative impact on the performance of daily living and work activities, with consequent impact on the qual-

ity of life (QOL) (Chorus, 2003). The underlying pathogenic processes of most rheumatic diseases begin years before the clinical diagnosis is made, and irreversible joint damage happens (Gheita, 2011).

World Health Organization (WHO) define the QOL as "the individual's perception of his or her position in life, within the cultural context and value system he or she lives in, and in relation to his or her goals, expectations, parameters and social relations" (Berlim and Fleck, 2003). The purpose of insertion of QOL as indicator for health outcome is attributed to the sensitivity of this measure for the evaluation of patient's health status after taken treatment and its health outcome; where, the evaluation of QOL is important because this evaluation can determine the aspects that are significant for the quality of life of patients (Verma and Dadarwal, 2017; Robinson et al., 2003). Studies evaluating the impact of RA on QOL showed that these patients have significantly lower levels of QOL when compared with the general population (West and Jons-son, 2004; Haroon et al., 2007). Other studies have also shown that changes in QOL can be seen even in the earliest stages of the disease progression (Mota et al., 2010).

The goal of the current study was to evaluate quality of life among a sample of Iraqi patients with rheumatoid arthritis and to determine the possible association between quality of life component (physical, psychological, social and environmental health) and some patient's certain factors.

MATERIALS AND METHODS

The current cross-sectional study was carried out on a convenient sample of 250 already diagnosed RA patients (mean age was 50.8 ± 13.1 years) who attended Baghdad Teaching Hospital/Medical City/Rheumatology department during October 2018 to January 2019. The number of female patients was 221 (88.4%), while the number of male patients was 29 (11.6%).

Inclusion Criteria

1-Patients with RA as defined by the 1987 revised American Rheumatism Association (ARA) criteria (Arnett et al., 1988).

2-RA patients who are aged 20-80yr of either sex who are accepted to participate in the study.

3-Disease duration >1 year.

4-Present treatment with steroids, NSAID, DMARDs including "methotrexate, leflunomide, sulfasalazine, hydroxychloroquine, and azathioprine", with or without takings biological agents. 5-Patient have

Table 1: Socio-demographical characteristics of patients

Variables	Value
Age (years), mean \pm SD	50.8 \pm 13.1
<30 years	16 (6.4%)
30 – 39 years	33 (13.2%)
40 – 49 years	58 (23.2%)
50 – 59 years	69 (27.6%)
\geq 60 years	74 (29.6%)
Gender	
Male	29 (11.6%)
Female	221 (88.4%)
Marital status, n (%)	
Single	26 (10.4%)
Married	224 (89.6%)
Education level, n (%)	
Illiterate	89 (35.6%)
Primary	64 (25.6%)
Secondary	59 (23.6%)
College	38 (15.2%)
Location, n (%)	
Urban	233 (93.2%)
Rural	17 (6.8%)
Smoking, n (%)	
Smoker	17 (6.8%)
Non-smoker	233 (93.2%)
Employment status, n (%)	
Unemployed	190 (76.0%)
Employed	60 (24.0%)

not changed their medication in the last three months.

Exclusion Criteria

1-Patient who had a hearing, speech or cognitive deficits that would impair understanding of the questions.

2-Patient who take antidepressant drugs, or being on treatment for any neurological or psychological diseases.

3-If, they were receiving no medication.

4-Pregnant women.

5-Patient who had serious co-morbidity such as, malignancies and end-stage organ failure.

6-Patients providing incomplete or conflicting information during the completion of the questionnaire also will be excluded from the study.

Method

The questionnaires

Table 2: Disease characteristics of the patients

Variables	Value
Disease duration (years), mean \pm SD	9.6 \pm 7.8
< 10 years	174 (69.6%)
10 – 19 years	43 (17.2%)
\geq 20 years	33 (13.2%)
Medication use duration (years), mean \pm SD	7.0 \pm 6.4
Number of other chronic diseases, n (%)	
None	158 (63.2%)
1 disease	63 (25.2%)
2 diseases	29 (11.6%)
DAS 28-ESR	3.5 \pm 0.6
Remission	1 (0.4%)
Low	11 (4.4%)
Moderate	108 (43.2%)
High	130 (52.0%)
CDAI	3.4 \pm 0.6
Low	15 (6.0%)
Moderate	123 (49.2%)
High	112 (44.8%)

CDAI: clinical disease activity index; DAS28-ESR:disease activity score-erythrocyte sedimentation rate

Quality Of life was measured by the Arabic version of WHOQOL-BREF. It consists of 4 domain: physical health (seven items), psychological (six items), social relationships (three items), and environment (eight items). Every domain is included of multiple questions that are measured together. Besides the four domains, other two stand-alone questions used to measure rated QOL and healthiness with satisfaction (Feder *et al.*, 2015; Krägeloh *et al.*, 2012). Question one asks about a person's general perception of the quality of life, and question two asks about a person's general perception of their health (Organization, 1996). The response scales, "all five-point Likert type ranging from 1 [not at all/never/very dissatisfied/very poor] to 5 [extremely/always/very satisfied/very good]. Higher scores signify higher personal satisfaction (Esch *et al.*, 2010). The scores are then converted linearly to a 0–100-scale (Organization, 1996).

Study design

Administration of questionnaires

The information were gathered by the researcher herself. When the patients arrived to the hospital/rheumatology department, they were asked if they accept to participate in the study, an explanation of the questionnaire was given to each patient who spent about 5 minutes to fill the research questionnaire completely.

Statistical analysis

Anderson darling test was done to evaluate if continuous variables follow a normal distribution if follow normal distribution than mean and standard deviation used, it did not follow normal distribution than the median and interquartile range (25% to 75% percentile range) will be used to present the data. Linear regression analysis performed to evaluate the relationship between different variables, r (correlation coefficient or standardized beta is a representative of magnitude and direction of the relationship), 0.00-0.29 = little or no correlation; 0.30-0.49 = weak; 0.50-0.69 = moderate; 0.70-0.89 = strong; and 0.90-1.00 = very strong. The negative sign indicates the inverse relationship, but a positive sign represents a direct relationship.

SPSS 22.0.0 (Chicago, IL), GraphPad Prism version 8.0.0 for Windows, GraphPad Software, San Diego, California USA, a software package used to make the statistical analysis, p-value considered when appropriate to be significant if less than 0.05.

RESULTS AND DISCUSSION

Mean age of patients was 50.8 \pm 13.1 years. 89.6% were married, and 35.6% were illiterate. 88.4% were female, the majority lived in the urban area of residence, and most of the patients were non-smokers and unemployed, as illustrated in Table 1.

The mean of disease duration was (9.6 \pm 7.8 years),

most patients with disease duration less than ten years (69.6%), and (63.2%) had no other chronic disease. In addition, (52%) of patients had high disease activity (DAS28-ESR) score and (44.8%) had a high clinical disease activity index (CDAI) score, as illustrated in Table 2.

Total score and sub-scores of patient's quality of life component are shown in Table 3 and Figure 1.

Table 3: Quality of life questionnaire scores of patients

Quality of life (QOL)	
Physical health mean ± SD	42.5±12.0
Psychological health, mean ± SD	45.1±12.4
Social health, mean ± SD	55.1±11.9
Environmental health, mean ± SD	45.1±13.0
Total score, mean ± SD	46.9 ± 9.7

In univariate analysis; higher education levels, employment patients are directly associated with all component of QOL, while disease activity represented by both DAS28-ESR and CDAI are inversely correlated with all component of QOL. Age and disease duration were inversely correlated with both QOL-psychological and environmental health, while female patients had higher physical and psychological health score comparable to male patients, as illustrated in Table 4.

In multivariate analysis, disease activity estimated by both DAS28-ESR and CDAI were independently correlate (inverse relationship) with physical and psychological health. Age only was independently correlate (inverse relationship) with psychological health. Education level was independently correlate (direct relationship) with both social and environmental health, while disease duration was only independently correlate (inverse relationship) with environmental health, as illustrate in Table 5.

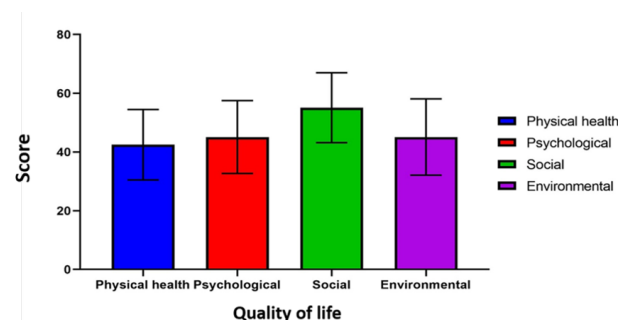


Figure 1: Means of quality of life domains

Rheumatoid arthritis is one of the common chronic

disease, which lead to great disability and chronic pain, and has a main adverse economic and social effect upon patients (Verstappen et al., 2004). There are limited nationwide populace studies on the epidemiology of RA (Kuo et al., 2012).

Assessment of health related quality of life depends not only on treatment methods but also on influence of series of factors, i.e., socio-demographic difference, system of values, expectations, needs, attitudes and methods of valuing a disease situation and adaptation process of a patient to a new, changing situation (Ware et al., 2000; Kosinski et al., 2002). Therefore, general approach to chronically ill patients is important while considering all domains involved in health maintenance; as indicate by WHO health is bio-psycho-social well-being, not only absence of disease or sicknesses (Ogińska-Bulik and Langer, 2006).

Of all domains, physical health was affected mostly (the lowest score) and this is similar to study done by (Bedi et al., 2005), which concluded that physical domain of QOL is the mostly affected in Indian patients with RA. Psychological and environmental health were affected subsequently to physical health. Where rheumatic illness has itself been considered as a stressor. So rheumatic illness can, therefore, have substantial consequences for patient's mood and psychosocial function (Evers et al., 2011; Land et al., 2010).

In spite of physical disability, there was relative preservation of the social relationship domains of QOL, which record higher score among other domains. This has been borne out by other studies (Haroon et al., 2007; Aggarwal et al., 2016). Possible explanation about this may be due that the social relationship domain in WHOQOL-BREF covers only three questions and so it considered less responsive to changes than other domains (carroll et al., 2000).

In the present study, older age patients was associated with reduced psychological and environmental score. Similarly seen in study which review that increased age in RA patients over 75 years associated with reduced QOL (Jakobsson and Hallberg, 2010). Female patients had high physical and psychological score compared to male patients. While study performed in Hospital Sierrallana, a teaching University Hospital in Northern Spain found that female RA patients had lower QOL levels than male patients (Aurrecochea et al., 2015).

In the present study, education level was directly related with four domains of WHOQOL-BREF, were patients who lake adequate education were associated with worse QOL score. A strong belief found

Table 4: Univariate linear regression analysis between QOL and other variables of patients

	QOL-Physical health		QOL-Psychological		QOL-Social		QOL-Environmental	
	Regression coefficient	P	Regression coefficient	P	Regression coefficient	P	Regression coefficient	P
Age	-0.101	0.055	-0.171	0.003	-0.076	0.142	-0.139	0.014
Gender	-0.176	0.005	-0.167	0.008	-0.084	0.235	-0.023	0.720
Marital status	-0.020	0.378	-0.059	0.178	0.030	0.335	-0.049	0.222
Education level	0.253	<0.001	0.271	<0.001	0.286	<0.001	0.383	<0.001
Residence	0.074	0.121	0.060	0.172	0.068	0.168	0.020	0.376
Smoking	-0.074	0.121	-0.060	0.172	-0.068	0.168	-0.020	0.376
Occupation	0.213	<0.001	0.257	<0.001	0.228	0.001	0.282	<0.001
Disease duration	-0.091	0.075	-0.122	0.027	-0.041	0.283	-0.217	<0.001
Medication use duration	-0.034	0.297	-0.012	0.426	0.010	0.443	-0.033	0.304
Number of other chronic disease	0.002	0.490	0.045	0.240	0.066	0.175	0.040	0.263
DAS28-ESR	-0.418	<0.001	-0.465	<0.001	-0.274	<0.001	-0.270	<0.001
CDAI	-0.415	<0.001	-0.494	<0.001	-0.269	<0.001	-0.294	<0.001

Linear regression analysis

CDAI: clinical disease activity index; DAS28-ESR: disease activity score-erythrocyte sedimentation rate

Table 5: Multivariate linear regression analysis between QOL and other variables of patients

	QOL-Physical health		QOL-Psychological		QOL-Social		QOL-Environmental	
	Regression coefficient	P	Regression coefficient	P	Regression coefficient	P	Regression coefficient	P
Age	-	-	-0.184	0.004	-	-	-0.043	0.521
Gender	-0.097	0.113	-0.100	0.085	-	-	-	-
Education level	0.095	0.150	0.073	0.243	0.162	0.041	0.286	<0.001
Occupation	0.050	0.463	0.093	0.152	0.122	0.132	0.112	0.099
Disease duration	-	-	-0.125	0.126	-	-	-0.350	<0.001
DAS28-ESR	-0.222	0.009	-0.171	0.033	-0.106	0.285	-0.065	0.433
CDAI	-0.227	0.007	-0.332	<0.001	-0.144	0.143	-0.161	0.054
R ²	0.285		0.357		0.192		0.294	

Linear regression analysis

CDAI: clinical disease activity index; DAS28-ESR: disease activity score-erythrocyte sedimentation rate

in the literature that poor knowledge and numeracy indicate health communication is unwell understood, this will lead to insufficient self-management and inappropriate health care usage (Wills, 2009).

Employed RA patients displayed better QOL scores compared to non-employed patients. Similar outcomes seen in other studies (Monjamed *et al.*, 2008; Monjamed and Razavian, 2008) were showed that having a job had significant association with enhancing some features in RA patient's QOL. It might be estimated that job offers good social status and earnings and could be important for social maintenance. Study done by found that jobless patients had elevated DAS28 (Citera *et al.*, 2014).

A negative correlation seen between disease duration and QOL-psychological and environmental score. Were greater psychological and environmental health impairment was described with long-time disease duration. This might be associated with high occurrence of depression amongst patients with RA (Matcham *et al.*, 2013) and finding that lifetime temper and mood depressing signs significantly related to impairment of QOL in patients with RA (Hyphantis *et al.*, 2013) or could be related to progressive nature of disease where every year of RA patients life associated with advanced rate of vascular aging and stiffening than a year of life without RA (Mercado *et al.*, 2017).

In the current study, disease activity estimated by both DAS28-ESR and CDAI were significantly inversely correlated ($p < 0.001$) with four components of WHOQOL-BREF. Demonstrate that high Physical, psychological, social and environment score were found amongst RA patients with low DAS28-ESR and CDAI in compared to whom who had modest and high disease activity score. This might be clarified by the fact that disease activity score is associated to the degree of inflammation and damage of the joint. These outcomes were related with several studies; showed a significant correlation with physical and psychological HRQOL domains (Gamal *et al.*, 2016; Suurmeijer *et al.*, 2001; Alishiri *et al.*, 2008).

Univariate analysis showed that gender, education levels and occupation significant correlate with physical and psychological health score. However this relationship absent in multiple regression model. This means that those variable are important predictor for HRQOL when considered as single factor but such factors become insignificant when considered in the presence of other stronger factors like disease activity estimated by both DAS28-ESR and CDAI. In addition educations levels was independently correlate (significant direct relationship)

with both social and environmental health in multiple regression regardless presence of other factors.

Limitations of the study

Patients were incorporated from only one department of internal medicine and the main diagnosis was rheumatoid arthritis. Subsequently the outcomes can't be summed up to other patient gatherings with other diseases. In addition, the sample of RA patients had a disease duration above one year, making the results not generalizable to patients with recently diagnosed RA. Lastly, the present investigation was a cross-sectional study, which makes it impossible to draw causal conclusions.

CONCLUSION

According to the results obtained from this study, it can be concluded that RA has a significant effect on the health related quality of life of patients especially among those with high disease activity, older age, lower education levels, and unemployed patients.

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