Original article

Evaluating Quality of Life across Different Stages of Rheumatoid Arthritis

Zia-Ul-Haq[1], Bilal Azeem Butt[2], Nauman Zafar[3], Muhammad Yasir Imran[4], Faizan Ahmad[5], Sumbal Saleem[6]

[1,5]Senior Registrar/RGR Rheumatology, Department of Medicine, Sir Ganga Ram Hospital, Lahore-Pakistan, [2]Assistant Professor Department of Rheumatology Fatima Jinnah Medical University/Sir Ganga Ram Hospital, Lahore-Pakistan, [3]Assistant Professor of Rheumatology, Postgraduate Medical Institute, Lahore-Pakistan, [4]Assistant Professor Department of Rheumatology, King Edward Medical University/Mayo Hospital, Lahore-Pakistan, [6]Medial Officer Department of Medicine, Sir Ganga Ram Hospital, Lahore-Pakistan

Correspondence to: Zia-Ul-Haq, Email: idrzia@yahoo.com

ABSTRACT

Background: Rheumatoid arthritis is a chronic, progressive inflammatory disease that causes pain, swelling, and disability, severely affecting up to 50% of patients' quality of life.

Objective: To find out the association between disease severity of Rheumatoid Arthritis and QOL among patients.

Methods: The present study was conducted at Sir Ganga Ram Hospital, Lahore from January to March 2024 A total of 120 patients with RA were enrolled by convenient sampling technique in this descriptive cross-sectional study. All patients with age >18 years, all genders and no mental illness or disturbance of consciousness were included. Pregnant females, and patients with severe co morbidities such as cancer or end stage organ failure were excluded. Demographic details, presenting symptom, disease severity assessed by Disease activity score-28 (DASS-28) and Quality of Life were recorded using a pre-designed proforma. The collected data was analyzed by using SPSS V24.0 software. The association between QOL and pain with disease severity was compared by using chi-square test. P-value ≤ 0.05 was considered as significant.

Results: The association between quality of life (QOL), pain levels, and disease activity was significant(P-value<0.05); 90.0% of participants with high disease activity reported poor QOL, and severe pain was more prevalent (64.6%) in this group compared to those with low disease activity (33.3%).

Conclusion: The study revealed a significant association between disease severity, pain, and overall patient quality of life. These findings indicate that higher disease activity correlates with increased pain severity and a diminished quality of life among participants.

Keywords:

Rheumatoid arthritis (RA), DAS28, quality of life, Disease activity, severity, stages of RA

INTRODUCTION

Peripheral joints are primarily affected in rheumatoid arthritis (RA) which is a chronic, slowly progressing inflammatory disease.[1] It leads to significant pain, swelling, and disability, impacting up to 50% of patients and severely diminishing their quality of life (QoL). Rheumatoid arthritis (RA) profoundly affects patients' health-related quality of life (HR QoL), encompassing both physical and mental aspects of well-being.[2] However, RA is a relentlessly progressive disease that has episodes of high and low disease activity, which may present different symptoms of the illness and different degrees of functional impairment. Any worsening of the condition worsens the state of the joints and becomes fatal for the joint. Symptoms of RA typically involve inflammation, joint damage, joint tenderness when palpated, worse pain when at rest, morning stiffness that lasts for one hour or more, patient immobility, reduced quality of life.[3]

In recent years, the Quality of Life (QoL) scale has been utilized to assess QoL and guide treatment options for both healthy individuals and patients. This has significantly enhanced our understanding of disease and health.[4] QOL is crucial for measuring the impact of rheumatoid arthritis (RA) and evaluating the effectiveness and cost-efficiency of treatments. Studies have shown that early treatment can improve QoL in RA patients.[5,6] Advances in medical treatment and healthcare have heightened the importance of QoL, sometimes extending life at the expense of QoL, or improving QoL without extending life. RA significantly affects both the mental and physical aspects of well-being.[7]

In another study it was found that severity of RA is linked to significant functional disability and morbidity. As the severity of the disease increases, so do work and activity impairments.[8] Another study discovered that most patients with low disease activity experienced

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moderate depression and anxiety. In contrast, 75% of patients with moderate disease activity and 83.3% of those in remission had mild anxiety. There was a significant positive correlation between the Disease Activity Score-28 (DAS-28) and level of anxiety.[7] Another study indicated that there was negative correlation between the level of anxiety and depression with QoL. It was also demonstrated that the depression is a significant predictor of impaired QOL.[9]

The goal of treating rheumatoid arthritis (RA) is to manage patient well-being and disease activity effectively, aiming for remission, low disease activity, and improved QoL. While traditional clinical measures are important, patients reported outcomes and QoL are crucial for assessing treatment response. Evaluating QoL across different RA stages is essential due to the disease's varying impact over time, from mild symptoms to significant disability. Monitoring QoL helps track disease progression and refine care plans to address both physical and emotional aspects of RA. The objective of this research was to find out the association between disease severity of Rheumatoid Arthritis and QOL among patients.

PATIENTS AND METHODS

The present study was conducted at Sir Ganga Ram Hospital, Lahore from January to March 2024. A total of 120 patients with RA were enrolled in this cross-sectional study by convenient sampling technique. The sample size was estimated using prevalence of RA was 26.9%[10] at 8% margin of error and 95% confidence level. All patients with age >18 years, all genders and no mental illness or disturbance of consciousness were included. Pregnant females, other forms of rheumatic pathology (like Systemic lupus erythematosus, Ankylosing spondylitis and Sjögren's syndrome) and patients with severe comorbidities were excluded. informed consent were obtained and thoroughly explained to each patient. The outcomes were disease activity assessed using the Disease Activity Score (DAS-28) of greater than 5.1 or equal to or less than 3.2 or less than 2.6. Quality of life was measured by using the self-administered Rheumatoid Arthritis Quality of Life (RAQOL) questionnaire containing 30 yes/no questions. The score for each item was added together to yield a total score of the index with a theoretical range of 0 through 30. The scoring of the variables was also done such that the higher score represented a low quality of life and vice versa. Quality of life was divides as poor if score was <10 and score >11 was considered as good quality of life.[11] All data was recorded on a pre-designed proforma by researcher during interview process. Demographic details (like age, gender, marital status, education and BMI), Pain (using VAS) and presenting symptoms were recorded using a pre-designed proforma. BMI was calculated as weight in kilograms was divided by the squared height to calculate the BMI. The collected data was analyzed by using SPSS V24.0 software. The qualitative variables like gender, presenting symptoms and disease severity was represented in terms of frequency and percentage. All the quantitative variables like QOL score were presented by mean +SD. The association between QOL and pain with disease severity was compared by using chi-square test. P-value ≤ 0.05 was considered as significant.

RESULTS

In current study female, out of 120 (68.3%) were more than males making up 31.7% of the sample, indicating a female predominance. Marital status revealed that 74.1% of the participants were married, while 25.8% were unmarried. Educational attainment varied, with 20% of participants being illiterate, 45.8% having completed matriculation, and 34.1% holding a graduation degree. Body mass index (BMI) categories indicated that 4.2% of participants were underweight, 25.0% had a normal BMI, 36.7% were classified as overweight, and 34.2% met the criteria for obesity (Table 1).

Table 1: Demographics of Patients n=120

Characteristics	Mean+ SD
Age (Years)	41.26+11.28
Duration of disease (Years)	8.32+3.01
Gender	Frequency
Female	81 (67.5%)
Male	39 (32.5%)
Marital Status	
Married	89 (74.1%)
Unmarried	31 (25.8%)
Education	
Illiterate	24 (20.0%)
Matriculation	55 (45.8%)
Graduation	41 (34.1%)
BMI	
Underweight	5 (4.2%)
Normal	30 (25.0%)
Overweight	44 (36.7%)
Obesity	41 (34.2%)

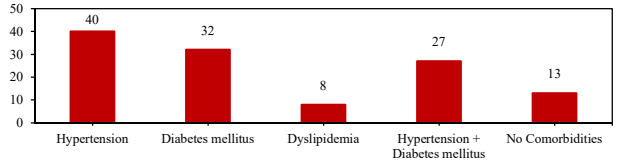

Figure 1: Comorbidities among Patients

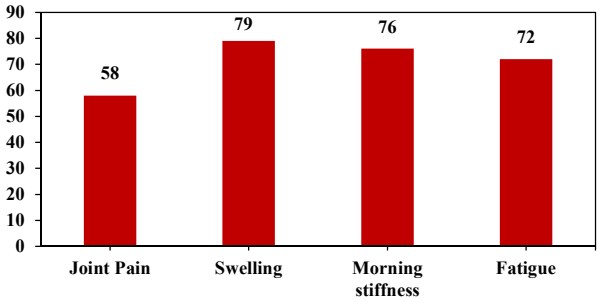

Figure 2: Presenting complaints of patients

Table 2: Association between QOL and pain with disease severity

Variable	Disease Activity			p-value
	Low n (%)	High n (%)	Total n (%)	
Quality of Life				
Poor	29 (72.5)	72 (90.0)	101 (84.1)	0.013*
Good	11 (27.5)	8 (10.0)	19 (15.8)	
Total	40 (33.3)	80 (66.7)	120	
Pain				
Mild	9 (23.0)	6 (7.3)	15 (12.5)	0.003*
Moderate	16 (41.0)	23 (28.0)	39 (32.5)	
Severe	13 (33.3)	53 (64.6)	66 (55.0)	
Total	39 (32.5)	82 (68.3)	120	

*Chi-square test, P-value<0.05 considered as significant

Hypertension emerges as the most common condition, followed by diabetes mellitus. A combination of hypertension and diabetes was also notable, while dyslipidemia was the least common comorbidity. chronic conditions in the study population, with hypertension and diabetes being the most common. (Figure 1).

The 90.0% of participants with high disease activity reported poor quality of life, compared to 72.5% with low disease activity (p = 0.013). Only 10.0% of those with high disease activity reported a good quality of life, whereas 27.5% of those with low disease activity did so. In terms of pain, severe pain was more prevalent among those with high disease activity (64.6%) compared to those with low disease activity (33.3%),(p-value = 0.003). Moderate pain was reported by 28.0% of those with high disease activity and 41.0% of those with low disease activity. Mild pain was relatively rare, especially in those with high disease activity (7.3%) compared to those with low disease activity (23.0%). These findings suggest that higher disease activity is linked with more severe pain and QoL among participants. (Table 2).

DISCUSSION

Rheumatoid arthritis (RA) significantly impacts patients' lives, with QoL often evaluated through both generic and RA-specific questionnaires. Compared to healthy individuals, RA patients report reduced QoL specifically emotional and mental health as well as physical and social domains. QoL measurement is essential for assessing the disease's effects and evaluating treatment effectiveness on mental and physical well-being. [12,13]

In current study the majority of participants were female (68.3%), with males making up 31.7% of the sample, indicating a female predominance. These findings align with a study by Gawde et al., which reported 87 female patients out of 100, reflecting the high incidence of RA—a condition with a strong autoimmune basis—among females.[14] Another study reported that RA, an autoimmune disorder, is two to three times more prevalent in women than in men, with recent data indicating a progressive increase in incidence among females over the past few decades.[15] Differences in immune responses between genders contribute to variations in the pathogenesis of infectious diseases and responses to vaccinations.[16]

The current study's findings highlight that swelling, morning stiffness, and fatigue are the most frequently reported symptoms, underscoring the physical challenges these patients face. (Figure 2).However, these finding were consistent with a review of the literature from 2004 to 2014, which found that patients with RA still experienced substantial pain, morning stiffness and disability in addition to poor mental health status and high levels of fatigue despite treatment.[17] Moreover, an extensive longitudinal study carried out over the course of 8 years reported that changes in treatment strategies were not helpful to reduce fatigue intensity among subjects with RA. It illustrates how even well-tolerated therapy can improve one facet of RA management but is likely insufficient to control all symptoms, particularly fatigue. Accordingly, a wider therapeutic strategy than those targeting only disease activity will be required in RA care with the integration of mental health, physical function and well-being into holistic management plan.[18]

The current study indicates a statistically significant association between quality of life (QOL), pain levels, and disease activity; 90.0% of participants with high disease activity reported poor QOL, and severe pain was more prevalent (64.6%) in this group compared to those with low disease activity (33.3%). These findings suggest that higher disease activity correlates with increased pain severity and reduced quality of life. These findings were comparable with another study which reported that overall, 27% of subjects had uncontrolled rheumatoid arthritis (RA);

meanwhile, only one-third were inadequately managed. The differences are significant in patients with adequate control that included much higher average pain levels (4.6 vs 2.3), worse global health, more impairment at work and during daily activities, as well lower satisfaction for both patients and their physicians These findings support the significance of comprehensive disease management for better physical and psychological status in patients with RA.[19] A study on the quality of life in Rheumatoid Arthritis (RA) patients compared to control groups showed significant differences between RA patient QoL and its impact. This demonstrates that poor quality of life is significantly greater in RA patients compared to healthy subjects from Northeast China. [20]

In another cross-sectional study, the Health Assessment Questionnaire-Disability Index (HAQ-DI)was utilized to assess the QoL in patients with RA. The results revealed that patients in the moderate and high disease activity groups had significantly lower health state utility values and health-related quality of life (HRQoL) scores ($p < 0.05$). RA notably impacts patients' HRQoL, influencing both physical and psychosocial functioning. It was also demonstrated that the disease severity has significant impact on patients QoL.[21]

The study found that the severity of rheumatoid arthritis (RA) significantly affects patients' quality of life, with higher disease activity linked to reduced overall well-being. However, the reliance on cross-sectional designs limits causal conclusions, and self-reported measures may introduce bias. Variability in patient populations and unaddressed confounding factors can impact generalizability. Additionally, the lack of longitudinal data restricts our understanding of the long-term effects of disease activity on quality of life, highlighting the need for more comprehensive research.

CONCLUSION

It was concluded that the severity of RA has significant impact on the QoL. The study revealed a significant association between disease severity, pain, and overall patient quality of life. These findings indicate that higher disease activity correlates with increased pain severity and a diminished quality of life among participants.

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