



## Quality of life in patients with Ankylosing Spondylitis in Duhok government, Kurdistan of Iraq

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### Abstract:

**Background and objectives:** Spondylarthritis is a broad spectrum of chronic inflammatory diseases, and one of its phenotypes is ankylosing spondylitis. Ankylosing spondylitis can impact the quality of life and health status because of pain, fatigue, and stiffness. This study aims to evaluate health-related quality of life and extra-articular manifestation in patients with ankylosing spondylitis in Iraq /Duhok city.

**Methods:** A descriptive cross-sectional study was carried out in the Duhok Center of Rheumatic Diseases. This study was conducted from the first of June 2022 to the end of November 2022 and ninety-two ankylosing spondylitis patients were enrolled and had their quality of life assessed. The assessment of Ankylosing Spondylitis Quality of Life Questionnaire was used, which is divided into four categories: social interaction, emotional health, disease activity, and physical function.

**Results:** Most of the patients were diagnosed between age 25 and 34 years, more than 90% of the participants were males only 6.5 % were females. The mean value of the total Quality of life score of patients with ankylosing spondylitis was 32.1. %. The patients had bilateral sacroiliitis (90.22%), peripheral arthritis (54.35%), plantar fasciitis (43.48%), and anterior uveitis (22.83%). The HLA-B27 was positive for 60.87% and 93.48% had spinal involvement. A small percentage did moderate physical activity (10.8%). patients with normal sleepers (63.04%), and those who were able to walk (94.57%). The study showed that the total QoL score of short sleepers had worse scores compared to the normal sleepers (41.67 vs. 27.76;  $P < 0.001$ ) was statistically significant.

**Conclusion:** Ankylosing spondylitis is a chronic condition that needs assessment. The disease affects the quality of life, causing functional disability and reduced activity.

**Keywords:** Ankylosing spondylitis, Evaluation of Ankylosing Spondylitis Quality of life, Human Leukocyte Antigen B27.

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## Introduction

Spondylarthritis (SpA) is a broad spectrum of chronic inflammatory diseases, and one of its phenotypes is ankylosing spondylitis (AS). Lower back pain is the main characteristic of this condition because it affects the axial skeleton. The most common musculoskeletal features are sacroiliac joint involvement, followed by peripheral enthesitis and arthritis. Extra-articular manifestations of this disease are anterior uveitis, cardiac involvement, inflammation of the bowel, lung apical fibrosis, and the existence of the HLA-B27 antigen.<sup>1</sup> The delayed diagnosis might be because of the late radiological changes in the sacroiliac joints, increased prevalence of low back pain in the population, and low awareness of physicians. Back pain is not uncommon in the general population, so it is important to distinguish inflammatory causes of back pain from other causes. Inflammatory back pain is characterized by stiffness and pain that worsen in the morning or after a long period of inactivity.<sup>2</sup> Therefore, many instruments were developed to assess low back pain among patients.<sup>3</sup> Bath Ankylosing Spondylitis Functional Index (BASFI) scale provides information about the impact of the AS on the patient with no information about the quality of life.<sup>3</sup> Spondylarthritis International Society (ASAS) did not involve the quality of life in assessing AS patients. Ankylosing spondylitis can impact the quality of life and health status because of pain, fatigue and stiffness, also identification of factors that are associated with poorer quality of life and risk factors are important for effective management of these patients.<sup>4</sup> Haywood and his colleagues in 2010 developed a questionnaire for the evaluation of Ankylosing Spondylitis

Quality of Life (EASi-QoL).<sup>5</sup> There was no specific measure; therefore, as an AS-specific measure, the EASi-QoL was created and used by many patients in item evaluation and generation. It has good validity and internal consistency.<sup>5</sup> The EASi-QoL is a simple and reliable instrument to assess the quality of life of AS patients.<sup>6</sup> No studies have been conducted in the region on the characteristics of AS and its effect on the quality of life. This study was conducted to evaluate health-related quality of life and related factors in patients with ankylosing spondylitis (AS).

## Patients and methods

A descriptive cross-sectional study was carried out in the Duhok health facility on rheumatic diseases and medical rehabilitation. This study was conducted from the first of June 2022 to the end of November 2022. A convenience sampling method was used, and a sample of ninety-two patients was recruited for the study. The structured questionnaire included two parts. The first part consisted of the socio-demographic characteristics of the studied sample and disease features. The second part was the EASi-QoL instrument, consisting of four domains; physical function, disease activity, emotional, and social. Each question scored from 0-4; 0 means no limitation, and 4 means extreme limitation. The six questions of the first domain scored from 0-24, and the four questions of the second domain scored from 0-16. The third domain (emotional well-being), and the fourth domain (social participation) both consisted of five questions and each question scored from 0-20. Each domain was categorized into three categories; 0-4 low, 5-9 medium and 10 and more were scored as high. A total EASi-QoL mean score of (0–17) considered of low effect on quality

of life. Scores from 18-35 were regarded as having a medium impact on the quality of the patient's life. The high-scored patients recorded 36 and more. In the physical function domain, participants were enquired about activities on the day of the interview and the other three domains (disease activity, emotional and social) in the last week before the interview. Disease-related questions were assessed; current treatment, diagnosis delay and age at onset. The data was obtained about rheumatic symptoms at disease onset, laboratory results, and history of extra-skeletal manifestations by directly interviewing the patients. The sacroilitis was confirmed by Magnetic Resonance Image (MRI). Patients with Ankylosing Spondylitis  $\geq 16$  years old according to ASAS/EULAR criteria of AS were included in the study. Patients with systemic diseases (endocrine, neurological, gastrointestinal, respiratory, cardiac, etc.) were excluded. The data were collected and entered into a worksheet (Excel 2010). The general characteristics of patients were presented in percentage and number. The score of total quality of life and its dimensions of patients were determined in standard deviation and mean. The comparisons of overall quality of life and its aspects in patients with varied features were investigated in an independent t-test or ANOVA one-way. The predictors of ankylosing spondylitis patients' quality of life were determined using standard least squares with effect leverage. The substantial level of distinction was obtained by a p-value  $< 0.05$ . Ethical considerations: The Kurdistan Higher Council of Medical Specialties' ethics and scientific committees has reviewed and approved the current research (Number 4573). All participants in the study were told verbally of their aim, and confidentiality was guaranteed.

### Results:

Table one showed that the mean patient's age was 38.41 and most were between 25 and 44 years. Patients were mostly males (93.48%), normal sleepers (63.04%), and were able to walk (94.57%). A small percentage did moderate physical activity (10.8%) and most were from urban areas (72.83%).

**Table (1):** demographic characteristics of studied sample

Characteristics (n=92)	Statistics
	No (%)
Age (16-65 years) mean (SD)	38.41 (11.21)
Age category	
16-24	10 (10.87)
25-34	27 (29.35)
35-44	27 (29.35)
$\geq 45$	28 (30.44)
Gender	
Male	86 (93.48)
Female	6 (6.52)
Sleeping	
Short sleeper	27 (29.35)
Normal sleeper	58 (63.04)
Long sleeper	7 (7.61)
Walking	
Walking/ No	5(5.44)
Walking /Yes	87(94.57)
1-44 min	25 (27.17)
45-119 min	31 (33.70)
120min and longer	31 (33.70)
Moderate physical activity(PA)	
PA/No	10 (10.87)
PA/Yes	2 (2.17)
1-44 min	6 (6.52)
45-119 min	2 (2.17)
120 and longer	
Residency	
Rural	25 (27.17)
Urban	67 (72.83)
Ethnicity	
Kurdish	91 (98.91)
Chaldean	1 (1.09)

The symptoms of Ankylosing spondylitis started at age between 10 to 29 years old in most of the patients, more than 60% were diagnosed at age between 16 to 34 years, but the mean gap of diagnosis was 7.14 years. The HLA-B27 was positive in 60.87% of patients. Ninety-three

percent had spinal involvement. Bilateral sacroiliitis detected in 90.22% of participants followed by peripheral arthritis, plantar fasciitis, and anterior uveitis (54.35%, 43.48%, 22.83%) respectively ,Table (2).

**Table (2):** disease characteristics and extra- articular manifestations in patients with Ankylosing spondylitis.

Characteristics (n=92)	No (%)
Age at symptoms category	
10-19	41(44.57)
20-29	37 (40.22)
30-39	12 (13.04)
≥ 40	2 (2.18)
Age diagnosis category	
16-24	28(30.44)
25-34	34(36.96)
35-44	21 (22.83)
≥45	9 (9.79)
Diagnosis gap	7.14 (7.80)
Peripheral arthritis	50 (54.35)
Sacroiliitis	
-Unilateral	3 (3.26)
-Bilateral	83 (90.22)
Plantar fasciitis	40 (43.48)
Achilles tendinitis	16 (17.39)
Anterior uveitis	21 (22.83)
HLA-B27	56 (60.87)
Spinal involvement	86 (93.48)
Treatment	
No treatment	11 (11.96)
Biological	48 (52.17)
Multi-therapy	27 (29.35)
Non-steroidal	5 (5.44)

The mean value of the total QoL score of patients with ankylosing spondylitis was 32.17. The mean values of QoL dimensions were 8.24 (Physical function), 7.43 (Disease activity), 7.65 (Emotional well-being), and 8.85 (Social participation). The study showed that the total QoL score of short sleepers had worse scores compared to the normal sleepers (41.67 vs.

27.76; P=0.0077). In addition, those patients who lived in rural areas had worse conditions compared to urban areas (40.24 vs. 29.16; P=0.0142). Similar patterns were found for the social participation, emotional well-being, disease activity, and physical function scores Table(3).

**Table (3):** Comparisons of total quality of life OoL in ankylosing spondylitis patients with different characteristics

	QoL	Mean (SD)	Min-Max
QoL dimensions	Total QoL score	32.17 (19.44)	0-80
	Physical function	8.24 (6.31)	0-24
	Disease activity	7.43 (4.80)	0-16
	Emotional wellbeing	7.65 (5.54)	0-20
	Social participation	8.85 (5.63)	0-20
		Total QoL	
Characteristics (n=92)		Mean (Sd)	p-value
Sleeping	Short sleeper	41.67 (17.44)	0.0077 <sup>a</sup>
	Normal sleeper	27.76 (18.71)	
	Long sleeper	32.14 (22.27)	
Residency	Rural	40.24 (17.42)	0.0142 <sup>b</sup>
	Urban	29.16 (19.41)	
Age diagnosis category	16-24	65.41 (35.07)	0.0170 <sup>a</sup>
	25-34	64.56 (37.50)	
	35-44	65.85 (42.63)	
	≥45	16.83 (13.75)	
Physical function score			
Residency	Rural	10.84 (6.10)	0.0149 <sup>b</sup>
	Urban	7.27 (6.15)	
Age diagnosis category	16-24	16.32 (12.93)	0.0067 <sup>a</sup>
	25-34	16.56 (11.73)	
	35-44	17 (12.93)	
	≥45	5.33 (4.32)	
Disease activity score			
Sleeping	Short sleeper	11.36 (2.84)	<0.0001 <sup>a</sup>
	Normal sleeper	6.09 (4.45)	
	Long sleeper	6.71 (5.28)	
Emotional wellbeing score			
Residency	Rural	10.00 (4.73)	0.0122 <sup>b</sup>
	Urban	6.78 (5.59)	
Age diagnosis category	16.24	16.91(10.5)	0.0396 <sup>a</sup>
	25-34	16.35 (10.76)	
	35-44	14.36(12.72)	
	≥45	2.00 (2.53)	
Social participation score			
Sleeping	Short sleeper	11.48 (5.27)	0.0111 <sup>a</sup>
	Normal sleeper	7.60 (5.43)	
	Long sleeper	9.00 (5.77)	
Residency	Rural	11.28 (5.41)	0.0105 <sup>b</sup>
	Urban	7.94 (5.47)	

## Discussion:

According to the current study, the majority of patients were male, the mean age was 38.41, and the majority of cases were diagnosed between the ages of 25 and 34. Most of them had typical sleep patterns. Over one-third of the patients could walk for more than 45 minutes each day. A small percentage did moderate physical activity as shown in Table (1). AS is more prevalent among males than females in our study, and this was in line with many previous studies. In the study of Tayel, 84% were males, and their mean age was  $37.44 \pm 12.8$  years.<sup>7</sup> In this study, the male-to-female ratio was higher 13.4:1 than in most of the neighbouring countries. A study of Otom revealed that 89% of participants were males and 11% were females with a ratio of 8.1:1.<sup>8</sup> This study found that most of patient's symptoms started from 10 to 29 years and the disease was diagnosed at young ages, but the mean gap of diagnosis was 7.14 years. The current study showed that 54.35% had peripheral arthritis. Anterior uveitis was 22.83% as one of the extra-articular manifestations in this study. European and Latin American anterior uveitis rates were 24% and 22%, respectively.<sup>9</sup> In this study, 60.87% had positive HLA-B27. Abdelrahman conducted a study among patients with AS of different ethnic groups living in Doha. The association between the ethnic group and HLA B27 was investigated and showed an overall positive result in 69% among all patients, 80% was Iraqis, 90% Egyptians, and 50% Syrians.<sup>11</sup> Ankylosing spondylitis is a chronic illness. Although there is no cure, therapy can lessen joint deterioration, avoid long-term consequences, and relieve discomfort. Therefore, various treatment modalities are available to reduce disability. Our patients were on NSAIDs, and biological drugs (5.44%, 52.1%)

respectively, while 29.35% received multi-therapy and 11.96% did not receive the treatment (Table 2). The health care system provides free biological medication in the public sector; therefore, it is widely used among AS patients. In the Morocco study, 15.4% were treated with NSAIDs.<sup>10</sup> Biological drugs were used in treating 4.3% of Egypt patients, and 8.6% were on regular NSAIDs, as revealed in the Abdelhafeez trial.<sup>12</sup> In our recent work, the mean value of the total QoL score of patients with ankylosing spondylitis was 32.17 the disease moderately impacted quality of life. Ankylosing Spondylitis Quality of Life (EASi-QoL) questionnaire was used in the USA, and the overall score was 28.9.<sup>13</sup> This result was consistent with the current study findings. The mean values of QoL dimensions were highest for Social participation followed by Physical function, Emotional well-being and Disease activity (8.85, 8.24, 7.65 and 7.43) respectively. The research found that the total QoL score of short sleepers had worse scores compared to the normal sleepers (41.67 vs. 27.76;  $P=0.0077$ ). In addition, those patients who lived in rural areas had worse conditions compared to urban areas (40.24 vs. 29.16;  $P=0.0142$ ) statistically not significant. The older patients had worse QoL compared to younger age groups. Similar patterns were found for the physical function, disease activity, emotional well-being, and social participation scores (Table3). This is the first study in the Kurdistan region of Iraq to find an association between QoL and disease activity. The present work has limitations: the small sample size and one health facility included in the research; therefore, the result could not be generalized to other health facilities. This is a cross-sectional designed study that cannot find causation.

Further epidemiological studies are recommended for a better understanding  
Conclusion: Ankylosing spondylitis is a chronic condition that needs assessment. The disease affects the quality of life, causing functional disability and reduced activity. All elements of QoL should be included in disease evaluation.

### Conflict of interest

There were no conflicts of interest.

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