Original Article

Fatigue Assessment Using FACIT-F Scale In Axial Spondyloarthropathy, Rheumatoid Arthritis And Systemic Lupus Erythematosus Patients Presenting To A Tertiary Care Hospital

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Abstract

Objective: To measure fatigue in patients with axial spondyloarthropathy, Rheumatoid Arthritis and Systemic lupus erythematosus and find its correlation with the disease activity measures.

Methods: This Cross-sectional, descriptive study was carried out in the Rheumatology Unit of the Federal Government Polyclinic Hospital from October 2024 to April 2025. This study included a total of 135 patients, with 45 patients meeting the ASAS criteria for spondyloarthropathy. Disease activity in ankylosing spondylitis (AS) patients was assessed using the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI). The Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) scale was used to evaluate fatigue in all patients.

Results: A total of 90 (66.6%) female patients and 45 (33.3%) male patients were included. Severe fatigue with a FACIT-F score of <30 was found in 81 (60%) of all included patients. Among the spondylarthritis group, the mean FACIT fatigue score was found to be 26 ±9.37, for RA it was 26.60 ±11.23, while that in the SLE cohort was found to be 28.86 ±12.40. Demographic profiles suggest that fatigue was most common in AS patients (68.8%), followed by RA (62.2%) and then by SLE (48.89%). The mean value of the FACIT score varied with the activity of the disease in all three diseases studied in this cohort. An independent sample t-test was used to compare the mean difference in the FACIT score among the ankylosing spondylitis patients, while ANOVA was used to find the difference in means among the RA and SLE patients, respectively.

Conclusion: Patients with active disease and higher disease scores had a lower FACIT-F score, suggesting more fatigue, thus correlating with the disease activity.

Keywords: Fatigue, Ankylosing spondylitis, Systemic lupus erythematosus, Rheumatoid arthritis.

Contributions:
SS, TK - Conception, Design
SS, SAS, QA - Acquisition, Analysis, Interpretation
SS, - Drafting
TK, SAS, QA - Critical Review

All authors approved the final version to be published & agreed to be accountable for all aspects of the work.

Conflicts of Interest: None
Financial Support: None to report
Potential Competing Interests: None to report

Institutional Review Board Approval
FGPC.1/12/2024
28-10-2024
Federal Government Polyclinic

Review began 07/02/2025
Review ended 01/11/2026
Published 30/12/2025

How to cite this article: Shafqat S, Khaliq T, Shah SA, Abbasi Q ul A. Fatigue Assessment Using FACIT-F Scale In Axial Spondyloarthropathy, Rheumatoid Arthritis And Systemic Lupus Erythematosus Patients Presenting To A Tertiary Care Hospital. JRMC. 2025 Dec. 31;29(4).

https://doi.org/10.37939/jrmc.v29i4.2952

Introduction

Fatigue is characterised in literature as a subjective sensation of malaise and aversion to activity, encompassing both mental and physical aspects.[1] In clinical practice, this lack of energy is ineffectively communicated by patients as ‘’fatigue”, “tiredness”, “lethargy”, “exhaustion” or similar descriptors.[1,2] Fatigue is one of the most commonly presented symptoms in primary care, affecting up to 20% of the general population, with women experiencing it at approximately twice the rate of men.[3] In the case of chronic disease, up to 50% of people endure fatigue as part of their condition.[4]

Rheumatoid Arthritis (RA), Ankylosing Spondylitis (AS) and Systemic Lupus Erythematosus (SLE) are characterised not only by chronic pain and systemic inflammation but also by profound fatigue that is often underrecognized and undertreated. [5-7]

Although fatigue is a common presentation across rheumatological diseases, pathophysiology and clinical impact may vary. In SLE, fatigue may reflect not only disease activity but also the effects of immune dysregulation, mood disorders, sleep disturbances, and medication side effects. Fatigue is prevalent (79%) in patients with SLE and is notably more frequent among Asian patients (86-94%).[8] A separate study in Pakistan indicated that SLE patients experience reduced HRQOL, associated with multiple factors, including disease activity.[9] In RA, fatigue can have a multifactorial origin involving cytokine dysregulation, anaemia, and psychosocial factors.[10] In AS, fatigue is frequently linked to axial inflammation, sleep disruption due to pain, and systemic inflammatory burden.[11] These overlapping but distinct mechanisms highlight the need for reliable tools to quantify fatigue across different rheumatologic conditions.

Effective fatigue assessment is essential for monitoring disease burden, evaluating treatment response, and guiding individualised care. However, measuring fatigue presents a clinical challenge owing to its subjective perception and complex, multidimensional aetiology. Several patient-reported outcome measures (PROMs) have been developed, among which is the Functional Assessment of Chronic Illness Therapy–Fatigue (FACIT-F) scale.

The Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) scale is a widely accepted tool to measure fatigue. This tool has been validated in various studies with different patient populations.[12,13]

The rationale of the study was that Rheumatological diseases with chronicity, like RA, SLE and AxSpa, are frequently associated with fatigue, which is an important factor affecting the quality of life and impacts patient compliance and satisfaction. The objective of this study was to find out fatigue in patients with RA, SLE and AxSpa using the FACIT-F scale, and establish a correlation of fatigue with disease activity.

Studies have evaluated fatigue in individual diseases. However, systematic comparison of fatigue levels using FACIT-F across these three conditions in real-world cohorts is limited.

Materials And Methods

This descriptive, cross-sectional study was conducted in the Rheumatology Department of the Federal Government Polyclinic Hospital from 17th October 2024 to 17th April 2025. The Ankylosing spondylosis patient pool was taken from an earlier study that was conducted in our department, which calculated fatigue score and observed its relation with the disease activity.[14] The sample size was calculated by the WHO calculator, which was found to be 45 with a confidence interval of 95% and a margin of error of 0.05, taking the prevalence of AxSpa to be 1%. To match that patient pool, we further enrolled 45 patients diagnosed with Rheumatoid Arthritis and Systemic Lupus Erythematosus.

The data collection proceeded after receiving approval from the hospital's Ethical Review Board. Consecutive, non-probability sampling was done to enrol patients in the study.

The participants provided written informed consent for the study.

Cases of AxSpA who fulfilled the ASAS criteria were included in the study. Disease activity in ankylosing spondylitis (AS) patients was determined using the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI). Rheumatoid Arthritis patients who fulfilled the ACR/EULAR 2010 criteria were evaluated for disease activity using the DAS28 score. Furthermore, 45 patients who met the ACR/EULAR 2019 criteria for systemic lupus erythematosus (SLE) were included, with disease activity assessed using the SLE Disease Activity Index (SLEDAI). Disease activity was calculated using online calculators.

BASDAI was calculated for AxSpA, with a score <4 representing inactive or mild disease, and ≥4 representing active disease. DAS 28 SCORE DISEASE ACTIVITY <2.6 indicated Remission, 2.6 - 3.2 Low disease activity, 3.2 - 5.1 Moderate disease and >5.1 severe disease. The SLEDAI score for SLE is based on the number of organs involved. No flare <3 Which was considered mild disease, a score >3-12 indicated moderate disease, while a score >12 was suggestive of severe flare.

Patients with other chronic conditions, including diabetes mellitus, thyroid disorders, ischemic heart disease, chronic kidney disease, asthma or chronic obstructive pulmonary disease (COPD), malignancies, haematological abnormalities, acute or chronic infections, and pregnancy were excluded to minimise potential confounding factors.

The patients completed the Urdu version of the FACIT-F questionnaire, and the researcher performed scoring following a licensed agreement obtained from FACIT.org.

The FACIT-Fatigue Scale is a 13-item questionnaire designed to assess fatigue experienced during the seven days preceding the evaluation. Each item is scored on a 5-point Likert scale ranging from 0 ("not at all") to 4 ("very much"). The total fatigue score is obtained by summing the responses, yielding a possible range of 0 to 52. Items 7 and 8 are reverse-scored to ensure that higher overall scores indicate lower levels of fatigue. Fatigue severity was categorised into four levels based on the total score: 40–52 indicated no or minimal fatigue, 27–39 indicated mild fatigue, 14–26 indicated moderate fatigue, and 0–13 indicated severe fatigue.

Data were analysed by using IBM SPSS, i.e. Statistical Package for Social Sciences (version 23.0). Descriptive statistics were presented as frequencies and percentages for categorical variables, and as means with standard deviations for continuous variables. Inferential analyses included Chi-square tests and independent samples t-tests. An ANOVA test was applied to determine the difference in means of the SLE and RA study groups. A p-value of <0.05 was considered statistically significant.

Results

There were a total of 135 patients in the study, 45 in each group of SPA, RA and SLE. A total of 90 female patients and 45 male patients were part of the study. Among the SpA patients, 39 had ankylosing spondylitis, 4 had peripheral arthritis, and 2 had Enthesitis-related Juvenile idiopathic arthritis. Based on their disease activities, 29 (64.4%) were found to have Inactive disease on the BASDAI score and 16 (35.6%) with active disease. Among the rheumatoid arthritis patients, 10 had high DAS 28 ESR (Erythrocyte sedimentation rate) score, 24 experienced moderate disease activity, and 8 had low disease activity, while only 3 patients were found to be in remission. On the other hand, among the SLE patients, 23 had moderate disease activity on the SLEDAI score, 18 had low disease activity, while only 4 were found to have high disease activity on the SLEDAI score. Overall, severe fatigue using the FACIT Fatigue score was found in 81(60%) of all the included patients. Table 1 shows the demographic profiles of the individual diseases in detail, while Figure 1 shows the overall disease duration among the three diseases.

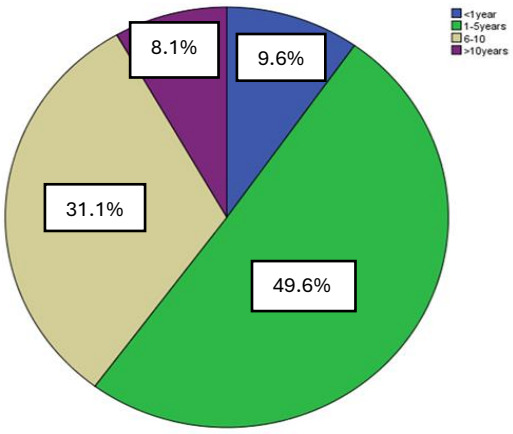

Figure 1: Duration of disease for all the diseases

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Table 1: Demographic Characteristics of patients with AS, RA, and SLE.

	Number of patients	Percentage
SPONDYLOARTHRITIS		
Gender		
Male	36	80%
Female	9	20%
BASDAI		
Inactive ≤ 4	29	64.4%
Active > 4	16	35.6%
FACIT SCORE		
Severe fatigue (< 30)	31	68.8%
Less fatigue (> 30)	14	31.2%
Duration of Disease		
< 1 year	4	8.8%
1-5 years	22	48.8%
6-10 years	14	31.1%
> 10 years	5	11.1%
RHEUMATOID ARTHRITIS		
Gender		
Male	5	11.2%
Female	40	88.8%
DAS 28 ESR		
< 2.6 Remission	3	6.67%
> 2.6 to < 3.2 LDA	8	17.7%
> 3.2 to < 5.1 MDA	24	53.3%
> 5.1 HDA	10	22.2%
FACIT SCORE		
Severe fatigue (< 30)	28	62.2%
Less fatigue (> 30)	17	31.8%
Disease Duration		
< 1 year	1	2.2%
1-5 years	28	62.2%
6-10 years	13	28.8%
> 10 years	3	6.6%
SYSTEMIC LUPUS ERYTHEMATOSUS		
Gender		
Male	4	8.89%
Female	41	91.1%
SLEDAI score		
< 3= Mild	18	40%
> 3 to < 12 Moderate	23	51.1%
> 12 = Severe	4	8.9%
FACIT SCORE		
Severe fatigue (< 30)	22	48.89%
Less fatigue (> 30)	23	51.1%
Disease Duration		
< 1 year	8	17.7%
1-5 years	17	37.7%
6-10 years	15	33.3%
> 10 years	4	8.89%

As it can be seen that fatigue is an important presentation in all the patients with rheumatic diseases studied in this cohort, it was imperative to determine if there was any correlation between the disease's activity and its impact on the FACIT fatigue score. As can be seen from the demographic profiles table that fatigue was most common in ankylosing spondylitis patients, followed by rheumatoid arthritis and then by systemic lupus erythematosus.

Among the spondyloarthritis group, the mean FACIT fatigue score was found to be 26 ±9.37, for rheumatoid arthritis, it was 26.60 ±11.23, while in the SLE cohort was found to be 28.86 ±12.40. The mean value of the FACIT score varied with the activity of the disease in all three diseases studied in this cohort. An independent sample t-test was used to compare the mean difference in the FACIT score among the ankylosing spondylitis patients, while ANOVA was used to find the difference in means among the rheumatoid arthritis and systemic lupus erythematosus

patients, respectively. The results are shown in Table 2 below. It was also found that the mean difference varied with the disease activity as well, and it was significantly lower in the patients who had higher disease activity in the respective disease categories.

Table 2. Disease activities of SpA, RA and SLE and mean differences in the FACIT score using an independent sample t-test and ANOVA.

Disease	Disease Activity	FACIT Mean Value (95% CI)	St. Deviation (95% CI)	P value
Spondyloarthropathy	BASDAI			
	Inactive < 4	28.97	9.08	0.003[1]
	Active > 4	20.62	7.47	
Rheumatoid Arthritis	DAS 28 ESR			
	< 2.6 =Remission	42.66	2.88	
	> 2.6 to 3.2=LDA	38.87	5.61	0.001[2]
	> 3.2 to < 5.1=MDA	23.29	8.75	
	> 5.1= HDA	19.10	7.78	
Systemic Lupus Erythematosus	SLEDAI score			
	< 3= Mild	36.77	10.81	0.001[3]
	> 3 to < 12 Moderate	25.34	10.28	
	> 12 = Severe	13.50	5.56	

[1] Mean difference of 8.34 [95% CI; 2.96, 13.71] with t statistic 3.13 (df=43). Levene test p-value is 0.254

[2] F statistic of 16.158. Levene test p-value is 0.263.

[3] F statistic of 11.475. Levene test p-value is 0.317.

Discussion

Fatigue remains amongst the most debilitating and commonly experienced symptoms by patients with chronic inflammatory diseases such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and spondyloarthritis (SpA). This study aimed to evaluate the relationship between disease activity and fatigue severity using the Functional Assessment of Chronic Illness Therapy–Fatigue (FACIT-F) score in the most commonly presenting rheumatological diseases. The findings of our study, which included 135 patients equally divided among the three disease groups, call attention to several important trends and confirm prior observations while highlighting fatigue's multifactorial nature.

Fatigue was highly prevalent across all three disease groups, with 60% of patients demonstrating severe fatigue (FACIT-F score < 30). Among the three cohorts, patients with SpA reported the highest proportion of severe fatigue (68.8%), followed by RA (62.2%) and SLE (48.89%). These findings are compatible with prior research suggesting that while fatigue is universal, its prevalence and severity may vary across different autoimmune conditions depending on disease pathophysiology, patient demographics, and comorbid factors.[15,16]

The mean FACIT-F scores in our cohort further reflect this distribution: 26 ±9.37 in SpA, 26.60± 11.23 in RA, and 28.86±12.40 in SLE. These results are in agreement with values reported in the literature, [17] other studies in RA and SLE have shown mean scores ranging from 25 to 35, depending on disease activity and treatment status. [18,19]

Our study demonstrated a statistically significant inverse relationship between disease activity and FACIT-F scores in all three disease groups. Among SpA patients, those with active disease (BASDAI >4) were observed to have lower FACIT-F scores (mean 20.62) compared to those with inactive disease (mean 28.97), with a p-value of 0.003. Similar trends were seen in RA and SLE. In RA, mean FACIT-F scores declined progressively with increasing disease activity: 42.66 in remission, 38.87 in low disease activity, 23.29 in moderate disease activity, and 19.10 in high disease activity ($p < 0.001$). SLE patients also showed low FACIT-F scores with high disease activity states ($p < 0.001$), with the highest fatigue severity observed in those with high SLEDAI scores.

Systemic inflammation is recognised as a key contributor to the pathogenesis of fatigue. Pro-inflammatory cytokines such as TNF-α, IL-6, and type I interferons are known to affect central nervous system functioning, contributing to fatigue, cognitive dysfunction, and mood disturbances.[20] In RA, a significant association between disease activity (as measured by DAS28) and fatigue scores have been observed, independent of anaemia and inflammatory markers like ESR. A similar correlation was observed in a Chinese study for patients with AS.[21] However, in SLE, the concurrence of fatigue with disease activity was not robust and various independent variables like stress, pain and depression were identified.[22]

In our study, all three diseases showed an association between disease activity and fatigue; the strength and nature of this relationship were variable. RA and SpA demonstrated a stronger correlation.

The SLE group in our study had the lowest percentage of individuals with high disease activity (8.9%), yet nearly half (48.89%) still reported severe fatigue. This highlights the multidimensional contributors to fatigue in SLE, including mood disorders, sleep disturbances, stress, depression and deconditioning. Moreover, apart from disease flare, patients with low disease activity with glucocorticoid use more than 10 mg were also observed to have higher fatigue scores in some studies.[23] In our study, we did not formally assess psychosocial variables, but their role is likely significant and warrants future investigation.

The predominance of female patients (90 of 135, 66.7%) in our cohort mirrors the known gender distribution of autoimmune rheumatic diseases. Literature suggests that the female gender is associated with higher fatigue burden, possibly due to hormonal influences, pain sensitivity, and stress.[24]

Regarding disease duration, fatigue was observed across all categories, with a higher burden in those with longer disease duration. This is in accordance with the concept of chronic inflammation leading to cumulative damage, deconditioning, and central sensitisation in chronic diseases.[25]

The significant inverse association between disease activity and FACIT-F scores highlights the importance of achieving and maintaining low disease activity or remission to alleviate fatigue. Our findings support the use of FACIT-F as a valid patient-reported outcome (PRO) that captures clinically meaningful changes in health status.

However, our data also confirm that disease control alone may not be sufficient to fully resolve fatigue, particularly in SLE. Other contributing factors like anaemia, hypothyroidism, vitamin D deficiency, depression and stress should also be excluded and treated. Therefore, a multidimensional approach to fatigue management is essential, incorporating pharmacologic, behavioural, and rehabilitative strategies.

Non-pharmacological interventions such as cognitive-behavioural therapy, exercise programs, and sleep hygiene education have shown efficacy in reducing fatigue across rheumatic diseases.[26,27] Additionally, emerging digital health tools and wearable devices may facilitate real-time fatigue tracking and personalised interventions.[28]

There were a few limitations to this study. Firstly, the sample size, while being balanced among groups, was small, limiting the generalizability of findings. Secondly, potential confounding factors such as anaemia, vitamin D deficiency, Hypothyroidism, depression, anxiety, sleep disorders, medication use, and fibromyalgia were not formally assessed.

Future studies could incorporate longitudinal designs to assess changes in fatigue over time with disease activity and treatment response. Incorporation of validated tools for depression and sleep assessment, as well as biomarkers associated with neuro-inflammation and fatigue, would provide a more comprehensive understanding. Moreover, stratification of patients based on fatigue phenotypes (inflammatory vs. non-inflammatory) may facilitate tailored therapeutic approaches.

Conclusions

Fatigue is a dominant symptom and has a substantial burden in patients with SpA, RA, and SLE, with the highest severity observed in those with active disease. Our findings confirm that while disease activity is a significant predictor of fatigue severity, especially in RA and SpA, other non-inflammatory factors also play a key part, particularly in SLE. The FACIT-F scale is a valuable measure of patient experience and should be integrated into routine clinical practice and research. Addressing fatigue in rheumatology requires both effective disease control and holistic, patient-centred management strategies.

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