

# A Descriptive Study of Fibromyalgia Syndrome and Low Disease Activity Rheumatoid Arthritis

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## ABSTRACT

**Objectives:** To evaluate fibromyalgia syndrome in patients with rheumatoid arthritis (RA) with low disease activity.

**Settings and sampling:** From January 2022 to February 2023, this descriptive research was carried out at Lady Reading Hospital in Peshawar. Based on the ACR 2010 criteria for RA, patients with rheumatoid arthritis were enrolled in the study. Clinical Disease Activity Index (CDAI) scores between 2.5 and 10 were considered mild disease activity, indicating that the disease was of low severity. Based on the 2016 ACR criteria for the diagnosis of fibromyalgia, fibromyalgia syndrome was identified.

**Results:** A total of 78 patients were recruited, and 46 (58.9%) of them were female. Age ranged from 20 to 70 years, with a mean of  $41.3 \pm 10.6$  years. 17 individuals (21.8%) had the fibromyalgia syndrome.

**Conclusion:** Due to the broad discomfort associated with inflammation, substantial disease activity may make a fibromyalgia diagnosis easier. Hence, before diagnosing FMS in a RA patient, strict disease activity management should be taken into account.

**Keywords:** Rheumatoid Arthritis, Low Disease Activity, Fibromyalgia Syndrome,

## INTRODUCTION

Rheumatoid arthritis (RA) is a systemic inflammatory condition that mainly damages and destroys the bones, cartilage, and synovium. Damage to the structure might result in functional restrictions and a lower quality of life (QoL).<sup>1</sup>

The common syndrome known as fibromyalgia, which is marked by pain symptoms, muscular sensitivity, lethargy, tiredness, and sleep disturbances, may also be linked to rheumatoid arthritis.<sup>2</sup> The prevalence of fibromyalgia syndrome (FMS) was estimated to range from 2% to 8% in the general population, while it rose to 12-21% in RA patients.<sup>3</sup>

For many years, fibromyalgia was diagnosed using the 1990 American College of Rheumatology (ACR) criteria, although these criteria did not take into account the condition's concomitant exhaustion, sleep problems, cognitive impairment, or mental issues.<sup>4</sup> Wolfe et al. created the ACR fibromyalgia criteria in 2010.<sup>5</sup> When evaluated using the revised criteria, it has been demonstrated that fibromyalgia occurs more frequently and that the gender distribution may alter.<sup>6</sup>

FMS in addition to RA impacts QoL and functional status, makes it more difficult to evaluate the severity of the disease, and complicates disease activity assessment.<sup>7</sup> The prevalence of fibromyalgia in individuals with rheumatic illness has been the subject of investigations, although it is noteworthy that the number of studies using the 2010 ACR FMS diagnostic criteria is rather small. Consequently, the purpose of this study was to assess FMS in rheumatoid arthritis patients with low disease activity.

## MATERIALS AND METHODS

**Study Design and settings:** This descriptive study was conducted at department of Rheumatology, Lady Reading Hospital, Peshawar. Participants were enrolled from from January 2022 till February 2023. Approval was taken from the research review committee.

**Sampling:** Patients of both genders were enrolled among the age range of 18 to 70 years. Rheumatoid arthritis was confirmed using 2010 ACR criteria based on tender inflammatory joint swelling, positive rheumatoid serology, raised acute phase reactants and duration of symptoms. ACR score  $\geq 6/10$  was considered confirmatory for RA. The disease severity was assessed using Clinical Disease Activity Index (CDAI) that ranges from 0 to 61. CDAI  $\geq 2.5$  and  $< 10$  was called mild disease activity. Fibromyalgia syndrome was labelled based ACR criteria for the diagnosis of fibromyalgia by the presence of all of the following:

1) Pain at  $\geq 4$  different anatomical sites,

2) presence of symptoms  $> 3$  months,

3) pain index  $\geq 7$  and symptoms severity scale  $\geq 5$ .

Patients who were already taking treatment for fibromyalgia, underlying malignancy and organ failure were excluded.

**Data Collection:** All study participants granted their informed permission. Patients were accepted from the hospital's indoor rheumatology department. For each research participant, thorough history and physical exams were conducted. The demographic information of all research participants was gathered. The Body Mass Index (BMI) values were calculated. Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), rheumatoid factor (RF), and anti-citrullinated cyclic protein were all measured (anti-CCP). Individuals with RA diagnosis had their age at disease start and length of illness assessed. Morning stiffness episodes, the number of painful joints, and pain scores on the VAS (0-10) were all documented. Clinical Disease Activity Index was used to measure the disease's activity (CDAI). Remission was defined as CDAI  $\leq 2.8$ , mild disease activity was CDAI  $> 2.8$  and  $\leq 10$ , moderate disease activity was CDAI  $> 11$  and high disease activity was CDAI  $> 22$ . Based on the ACR 2016 criteria for the diagnosis of fibromyalgia, the presence of 4 or more anatomically painful sites and a history of pain in these areas for more than 3 months were noted as indicators of fibromyalgia syndrome.

**Data Analysis:** Excel worksheets were used to record the information, while SPSS version 25 was used to analyze. While categorical data was recorded as frequencies and percentages, continuous data was reported in terms of means and standard deviations. To determine if the data were normal, the Shapiro-Wilk test was used. Continuous variable means were compared using the independent sample t test, while categorical variables were compared using the chi square test. Mann-Whitney was applied for data that was non-normal distributed. Statistics were deemed significant if  $p \leq 0.05$ .

## RESULTS

Mean age of the patients was  $41.3 \pm 10.6$  years. Mean disease duration was  $10.65 \pm 3.319$  years. Other baseline variables are presented in table 1.

46 (58.1%) of the 78 participants were women. 47.4% of the patients (the majority) belonged to the 36–50 age range. More than 10 years of the illness had been present in 41 individuals (52.6%). The majority of the research participants were receiving standard rheumatoid arthritis treatment. A clinical examination identified 49 individuals (62.8%) with few sensitive sites that may support the fibromyalgia diagnosis.

Table 1: Baseline characteristics

Baseline Variables	Mean ±Std. Deviation
Age (years)	44.84±8.108
BMI (kg/m <sup>2</sup> )	21.435±1.341
Disease Duration (years)	10.65±3.319
Hb (gm/dl)	12.391±1.756
Serum Albumin (gm/dl)	3.850±0.877
ALT (IU/L)	37.23±5.324
CDAI	5.813±2.028

Table 2: Subgroup Analysis (n = 78)

Variables	Groups	Frequency and Percentage
Age	18-35 years	21 (26.9%)
	36-50 years	37 (47.4%)
	>50 years	20 (25.6%)
Gender	male	32 (41.1%)
	female	46 (58.9%)
Disease duration	Less than 10 years	37(47.4%)
	more than 10 years	41 (52.6%)
Treatment	Conventional	74 (94.9%)
	Biologics	04(5.1%)
Tender points	0 – 4	49 (62.8%)
	>4	29 (37.2%)

Based on 2016 ACR criteria for the diagnosis of fibromyalgia, fibromyalgia syndrome was validated in 17 individuals (21.8%). Among those, 11 (64.7%) were women. 09 patients (52.9%) fell among the 36 to 50 age range. Only one fibromyalgia patient had had biologic treatment; the other 16 had received conventional therapy.

**DISCUSSION**

We observed that fibromyalgia syndrome occurs more frequently in RA patients who had low disease activity. It was discovered that most of RA patients with FMS had significant levels of disease activity.<sup>8</sup> While the prevalence of FMS has been estimated to range from 2.2% to 6.6% in the general population, it was discovered in 21.8% of RA patients.<sup>9</sup>

Using the updated 2010 ACR diagnostic criteria for fibromyalgia, Wolfe et al study revealed a 21.1% FMS incidence in RA patients.<sup>10</sup> The incidence of the fibromyalgia syndrome may vary depending on the diagnostic standards. Using the 2016 ACR fibromyalgia diagnostic criteria, FMS was identified in this investigation. Yet, the findings of our investigation were very congruent with those of Wolfe and colleagues' study.<sup>6</sup>

According to multiple research, fibromyalgia causes RA patients to have higher disease activity levels. Patients with RA who had FMS had a higher Disease Activity Score 28 than those who did not have FMS.<sup>11</sup> Higher subjective characteristics were shown to be related with greater DAS28 in these investigations rather than higher objective disease activity. However, it should be kept in mind that because to their heightened, widespread pain and sleep issues brought on by inflammation, RA patients might readily fit the FMS criteria.<sup>12</sup>

In this study, patients were divided into groups based on the clinical illness activity index in order to distinguish between score increases brought on by the existence of FMS or by objective disease activity that could aid in FMS diagnosis. The prevalence of fibromyalgia syndrome was considerably greater in RA patients with active illness compared to patients in remission. When the objective criteria, such as SJC and ESR, were evaluated, they were shown to be considerably greater in RA patients with active illness. The findings indicated that increased CDAI in our patients was associated with objective disease activity rather than the consequences of FMS, and that active disease may aid in the diagnosis of FMS.

Long-term functional incapacity is brought on by rheumatoid arthritis because of the damage to the joints. There is evidence that FMS reduces quality of life and worsens functional disability in RA patients. The functional status and quality of life in RA are known to be influenced by age and the length of the disease.<sup>13, 14</sup>

In a Turkish research, FMS patients fared worse than RA patients in terms of overall health, social function, and emotional role. Although FMS does not cause deformity or injury to the joints, it may have a greater impact on quality of life than RA.<sup>15</sup>

**Limitations:** The limitations of our study might be attributed to the relatively small patient group and the patients' lack of knowledge on their thorough prior FMS histories. Furthermore, because our study was cross-sectional in nature, longitudinal investigations with larger sample sizes are required to support our preliminary conclusions.

**CONCLUSION**

Patients with RA have a higher prevalence of FMS, although active illness may make it easier to diagnose fibromyalgia because of the extensive pain brought on by inflammation. Hence, before diagnosing FMS in a RA patient, strict disease activity management should be taken into account.

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