

# Prevalence of Depression in Rheumatoid Arthritis Patients in A Rheumatology Centre at Hanamkonda

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## ABSTRACT

**Background:** Rheumatoid arthritis is a chronic illness with an unclear cause that manifests autoimmune inflammatory disorders marked by joint pain, stiffness, and swelling. Depression is a mental illness linked to frequent flare-ups of symptoms, increasing disability, poor quality of life and Prognosis in RA patients. The frequency and prevalence of depression in rheumatoid arthritis patients have risen and in this study analysis of the signs and symptoms using the Hamilton Depression rating scale is expected to support the idea of early identification and treatment can improve patient outcomes. **Materials and Methods:** This study was performed to determine the prevalence of depression in rheumatoid arthritis and to evaluate the inflammatory markers in people with and without depression. Study was carried out at Dr. Naresh Rheumatism and Arthritis centre, hanamkonda for a period of 6 months. Data analysis was done using unpaired t-test with the help of Graph pad prism. **Results:** 550 rheumatoid arthritis patients in total were enrolled over the study duration. Out of 550 individuals, 465 were diagnosed with depression, while 85 were found to be normal. In rheumatoid arthritis, depression prevalence was more in females (86.6%) than males (13.4%). Among total patients 88% of people were non adherent to medication. **Conclusion:** The prevalence of depression in rheumatoid arthritis was higher in women compared to men. Early diagnosis and management of depression in rheumatoid arthritis patients can improve their quality of life. Significantly low medication adherence (88%) in rheumatoid arthritis patients was due to low socioeconomic status and increased age.

**Keywords:** Hamilton Depression rating scale, Brief Medication Review, Rheumatoid Arthritis, Medication adherence, Depression.

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## INTRODUCTION

### Rheumatoid Arthritis

RA is an autoimmune and inflammatory disease, which means that immune system attacks healthy cells in your body by mistake; causing inflammation (painful swelling) in the affected parts of the body.<sup>1</sup> Rheumatoid arthritis is characterized by Joint swelling, joint tenderness, and destruction of synovial joints leading to severe disability and premature mortality. RA is a polyarticular autoimmune disease affecting about 1% of the adult population.<sup>2</sup>

In RA, the lining of the joint becomes inflamed, causing damage to joint tissue.<sup>3</sup> This tissue damage can cause long-lasting or chronic pain, unsteadiness (lack of balance), and deformity.

### Depression

Depressive disorder (also known as depression) is a common mental disorder. It involves a depressed mood or loss of pleasure or interest in activities for long periods of time.<sup>4,5</sup>

### Background

Depression is more common in RA than in the general population and has been associated with increased pain, fatigue, reduced health-related quality of life, increased levels of physical disability and increased health care costs.<sup>6</sup> Depressed RA patients have poorer long-term outcomes, including increased pain, more comorbidities and increased mortality levels.<sup>7</sup>

Depression may therefore be a useful target for interventions aimed at improving subjective health and quality of life in RA patients.<sup>8</sup> However, prevalence estimates for depression in RA range between 9.5% and 41.5%, making it difficult to establish the likely impact of depression in this patient group.<sup>9</sup>

Several factors that are related to RA could make this group of patients vulnerable to depression, including continuous pain,



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functional disability, inability to work, economic constraints, and the side effects of RA medication.<sup>10</sup>

Furthermore, depression in this group of patients may be caused by the interaction among clinical, biological, psychological, and demographic factors.<sup>11</sup> Depression in these patients is associated with fatigue, reduction of quality of life, increased inability and costs of treatment, and reduced compliance with the therapeutic regimen.<sup>12</sup>

### Ham-D Scale

The HDRS (also known as the Ham-D) is the most widely used clinician-administered depression assessment scale.<sup>13</sup>

The original version contains 17 items (HDRS17) pertaining to symptoms of depression experienced over the past week.<sup>14</sup>

For the HDRS17, a score of 0-7 is generally accepted to be within the normal range (or in clinical remission), while a score of 20 or higher (indicating at least moderate severity) is usually required for entry into a clinical trial.<sup>15</sup>

### Need For Study

This study aims to bring about new insights regarding the prevalence of depression in RA patients around 550 patients. There are rising expectations of morbidity and economic effect due to the restricted therapy options and preventive strategies for RA and depression. Therefore, our goal was to give a brief overview of the most recent information on the frequency of sadness in the RA population. This study helps patients in receiving the right care by evaluating the prevalence of depression in RA patients. For individuals with long-term disorders like RA inadequate therapeutic adherence is a prevalent and persistent healthcare problem. Hence, we proposed to evaluate the current adherence pattern to the therapeutic regimens in RA for better therapeutic outcomes.

### Aims

A prospective observational study to ascertain the prevalence of depression in RA Patients.

To evaluate medication adherence in the RA population.

### Objectives

To determine the prevalence of depression in Rheumatoid arthritis.

To evaluate inflammatory markers in RA patients with and without depression.

To assess depression in RA patients of different age groups.

## MATERIALS AND METHODS

The study was done at Dr. Naresh Arthritis and Rheumatism Centre in Hanamkonda, Warangal, Telangana, India. This was a prospective observational study. This approach made it possible to find out how common depression is among RA patients. There were 550 patients in the whole study. From October 2022 to march 2023, a total of 6 months were spent conducting this investigation at the hospital.

### Inclusion criteria

Patients with rheumatoid arthritis.

Patients of either gender.

### Exclusion criteria

Individual's having a history of other psychiatric disorder/mental illness.

Those affected by other inflammatory diseases.

Pregnant women & nursing mothers.

### Sources of data

All the relevant and necessary information was collected from:

Patient's prescriptions (which include demographics, laboratory investigations, diagnosis and treatment information)

### Forms included in the study

Patient informed consent form.

Data collection form.

Hamilton Depression rating scale (HAM-D).

Brief medication questionnaire.

### Study procedure

1. Inclusion and exclusion criteria were used to choose individuals with RA.
2. Patients of the age group between 20-80 years were enrolled.
3. Patient records were used to acquire demographic information.
4. Collecting the patient's background information and interviewing the individuals regarding the Hamilton depression ratings (17-item scale).
5. Documenting the patient profile details into respective data collection forms.
6. The data gathered from 550 patients over course of six months was examined.
7. The summarised data was entered in Microsoft office word.
8. Patients were separated based on age, gender, final diagnosis, and HAM-D score and percentages among the 550 population.

## RESULTS

Among the total population of RA, the highest prevalence of depression was seen in the age group of 51-60 followed by 41-50 years age group. Moderate, Mild, Less and negligible prevalence is seen in the age groups of 31-40, 61-70, 71-80 and 11-20 respectively. This is shown in Figure 1.

According to our analysis using HAM-D scale out of 550 RA patients 204 were affected with moderate depression and 70 Patients were suffering with severe and very severe depression. This is depicted in Figure 2.

Population between the 51-60 age group are moderately depressed. Based on the graph we can state that rheumatoid arthritis patients between 51-60 age are moderately depressed i.e., 61 females, and 6 males. This is depicted in Figure 3.

Among 550 population with RA 63(12%) people are adherent to medication. Whereas, 62% (341) were mild adherent. 20% (112) were less adherent and 6% (106) were not adhering to medication as shown in the Figure 4.

Here mean of ESR was determined among individuals with and without depression in which the mean of ESR in people with depression is found to be 54.14 and in people without depression mean-50.04. Which is shown in Figure 5 and Table 1.

There is not much difference in ESR levels between people with depression and without depression.

According to Hamilton depression and rating scale, Major symptoms which are found in patients are genital symptoms followed by insights, Retardation and suicidal thoughts which is depicted in Table 2.

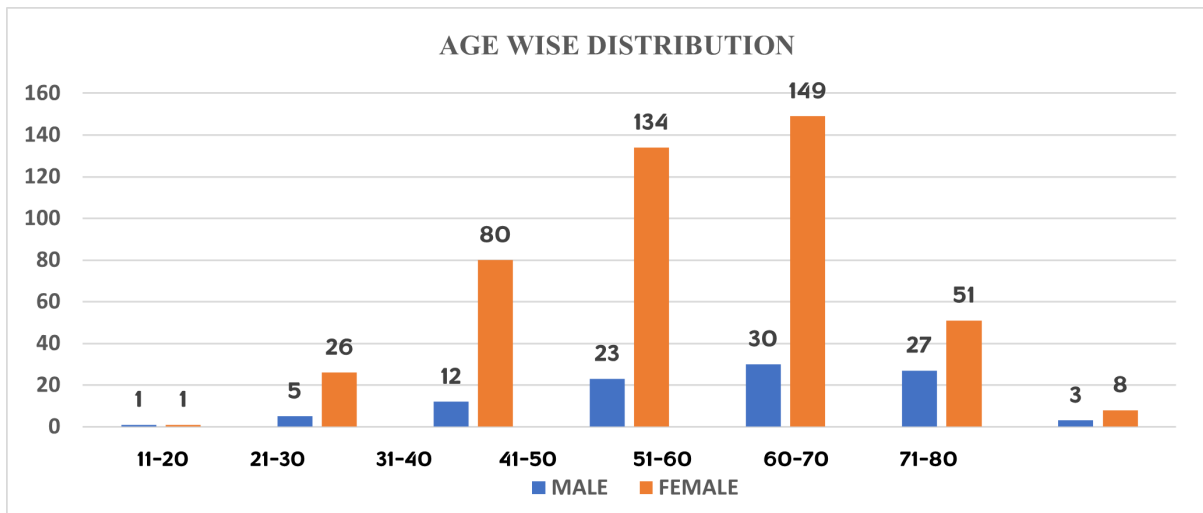


Figure 1: Age and gender wise distribution of RA patients.

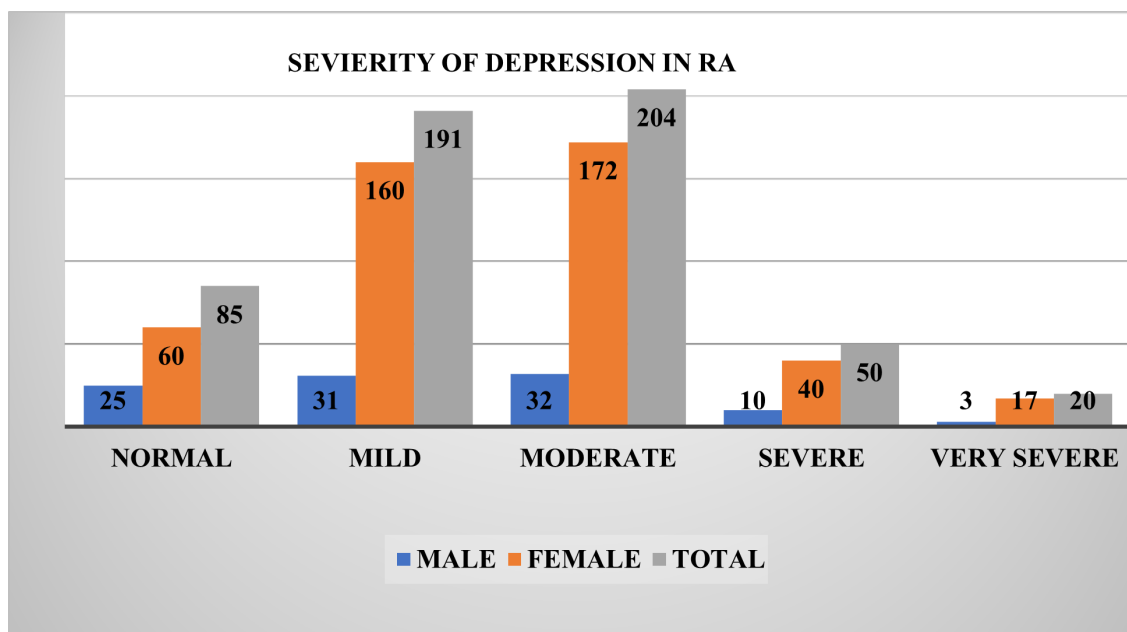


Figure 2: Severity of depression in rheumatoid patients.

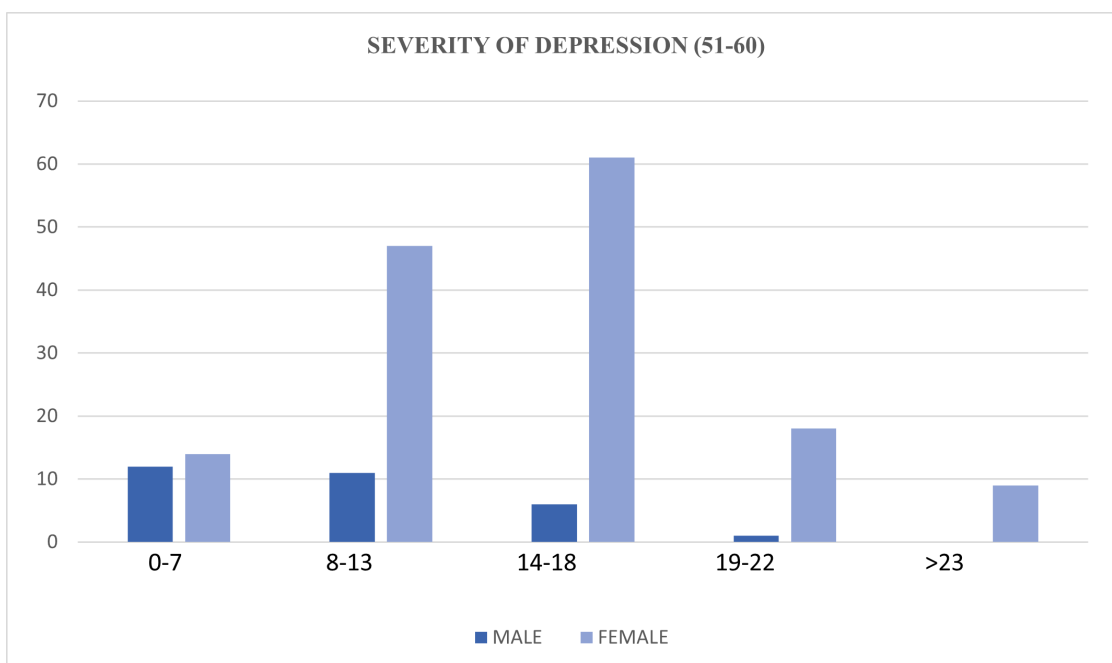


Figure 3: Severity of depression between age group 51-60.

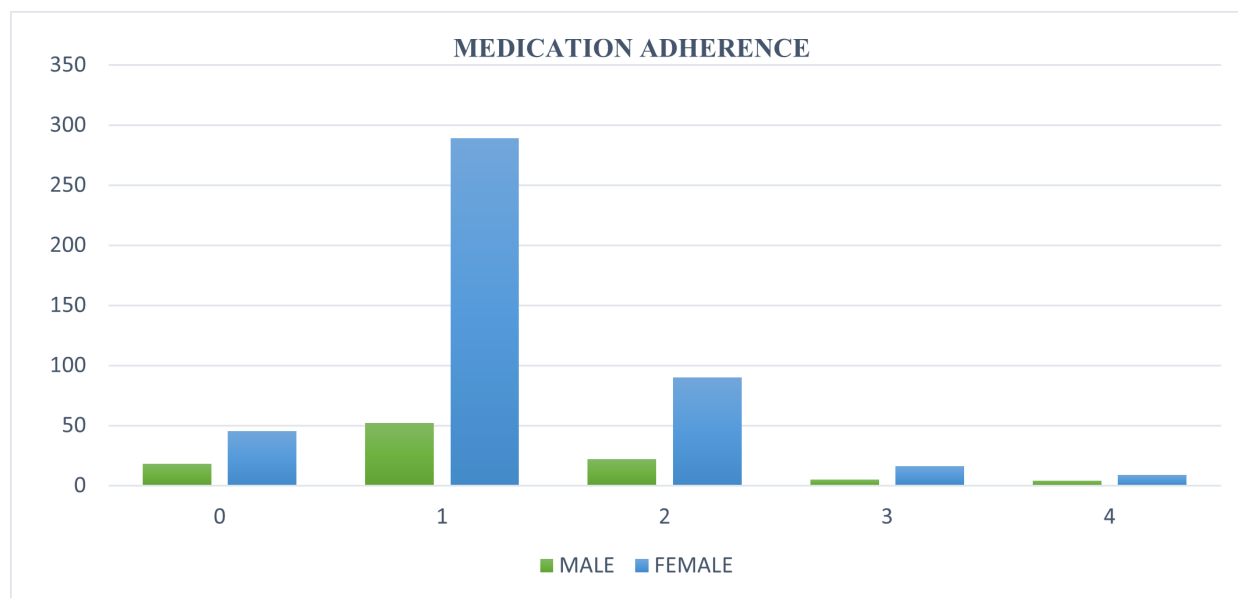


Figure 4: Individual scoring for medication adherence.

## DISCUSSION

We included 550 RA patients in the current research, 449 of whom were female and 101 of whom were male. 85 (15%) of the participants were considered normal, not displaying any signs of depression, whereas 191 (35%) were classified as having mild depression, 204 (37%) with moderate depression, 50 (9%) with severe depression, and another 20 (4%) were extremely severe depression. It was in line with early research published in September 2013 that found a significant frequency of sadness

in RA individuals and linked it to worse RA outcomes. It also recommended that RA patients should receive the highest standard of treatment, including identifying and treating depression. Therefore, it is understandable from the current study that depression is prevalent in RA.<sup>3</sup>

In the current study, we discovered that women (86.6%) had a higher prevalence of depression than men (14.4%) and the most common symptoms experienced by people were decreased productivity at work, sadness worrying about minor issues,

occasional disturbance during the night because of restlessness, waking up in the morning and being unable to sleep again occasional anxiety, and having difficulties falling asleep. Additionally, in our study, individuals were classified depending on their ages, and the HAM-D score, which measures the severity of depression and the intensity of depression was detected in patients in the age range of 51 to 60. An early study found that gender and

age are substantially connected with the risk of depression in RA patients,<sup>2</sup> additionally, compared to other individuals, persons aged >70 years had a 19% higher chance of developing depression. Based on ESR levels, variations in inflammatory markers between those with and without depression were evaluated using the unpaired t-test and the results showed that the mean ESR was 50.04 in those without depression whereas it was 54.14 in those with depression. Difference between means (B - A) ± SEM -4.103 ± 4.422. The 95% confidence range for these results is 12.79 to 4.584. The calculated p-value was 0.3540. ESR levels between those with and without depression do not differ appreciably. As a result, we may state that depression may not affect ESR levels. We hypothesized that depression would increase ESR levels in RA patients, thus we used the f test to examine variations in ESR levels in adults with depression (464) and without depression (85). The obtained result has a p-value of 0.3294 and a significance level above 0.05. Therefore, we concluded that there is no difference in inflammatory marker levels i.e., ESR between those with and without depression.

In the current study, we used a brief medication questionnaire scale to assess medication adherence in RA patients. We found that 89% of patients did not adhere to medication, with which 62%

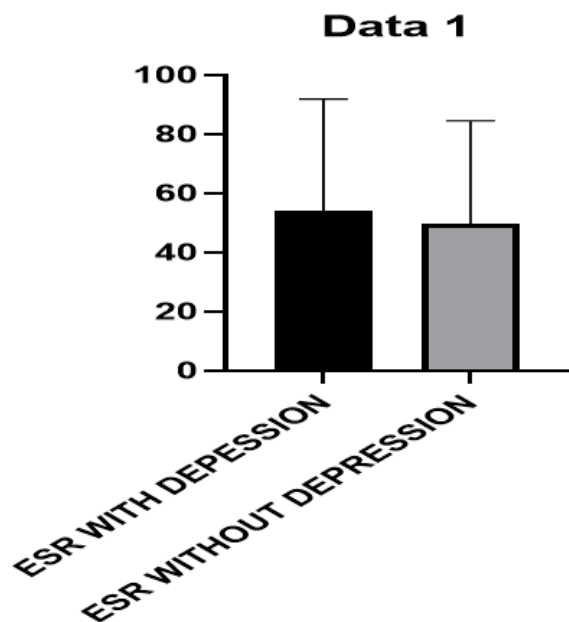


Figure 5: Mean of ESR with and without Depression.

Table 1: Mean of ESR.

Mean of ESR with depression	Mean of ESR without depression
54.14	50.04

Table 2: Hamilton depression rating scale.

Sl. No.	Symptoms	Highest score	Male	Female
1.	Depressed mood	1	62 (61.3%)	252 (56%)
2.	Feeling of guilt	0	59 (58.4%)	198 (44%)
3.	Suicide	0	76 (75.2%)	333 (74%)
4.	Insomnia-Initial	1	53(52.4%)	246 (54.6%)
5.	Insomnia-Middle	1	67 (66.3%)	282 (62.6%)
6.	Insomnia- Delayed	1	58 (57.4%)	271 (60.2%)
7.	Works & interests	3	40 (39.6%)	156 (34.6%)
8.	Retardation	0	80 (79.2%)	338 (75.1%)
9.	Agitation	1	62 (61.3%)	279 (62%)
10.	Anxiety -psychic	2	32 (31.6%)	220 (48.8%)
11.	Anxiety-Somatic	1	47 (46.5%)	204 (45.3%)
12.	Somatic symptoms	0	67 (66.3%)	226 (50.2%)
13.	General somatic symptoms	0	53 (52.4%)	204 (45.3%)
		1	39 (38.6%)	215 (47.7%)
14.	Genital symptoms	0	101 (100%)	426 (94.6%)
15.	Hypochondriasis	0	64 (63.3%)	286 (63.5%)
16.	Weight loss	1	46 (45.5%)	230 (51.1%)
17.	Insight	0	82 (81.1%)	360 (80%)

reporting only mild adherence, 20% reporting less adherence, and 4% reporting very little adherence. It was consistent with earlier research published in November 2021 that found psychological and communicational aspects affected treatment adherence in RA, which was poor.<sup>1</sup>

## CONCLUSION

According to our research the prevalence of depression in RA patients is substantially greater in women (86.6%) than in males (13.4%). And the most affected age group is between 51-60 years. Considering our results 37% of people are reported as moderately depressed, whereas 35% of people were experiencing mild depression, severe depression (9%), and very severe (4%). Additionally, our study found no discernible differences in inflammatory markers between people with and without depression. It also showed that RA patients had a relatively poor drug adherence rate (89%), which can be due to low socioeconomic status and illiteracy.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## ETHICAL APPROVAL

The study was carried out after taking permission from the Institutional Ethics Committee. (Ref: VPC/IEC/2022/02) The consent was taken from the patient to participate in the study.

## ABBREVIATIONS

**RA:** Rheumatoid Arthritis; **HAM-D:** Hamilton Depression Rating Scale; **ESR:** Erythrocyte Sedimentation Rate.

## SUMMARY

Rheumatoid Arthritis is an autoimmune and inflammatory disease, which means that immune system attacks healthy cells in your body by mistake; causing inflammation (painful swelling) in the affected parts of the body. Rheumatoid arthritis is characterized by Joint swelling, joint tenderness, and destruction of synovial joints leading to severe disability and premature

mortality. Depression is a mental illness linked to frequent flare-ups of symptoms, increasing disability, poor quality of life and Prognosis in RA patients. The frequency and prevalence of depression in rheumatoid arthritis patients have risen and in this study analysis of the signs and symptoms using the Hamilton Depression rating scale is expected to support the idea of early identification and treatment can improve patient outcomes. The prevalence of depression in rheumatoid arthritis was higher in women compared to men. Early diagnosis and management of depression in rheumatoid arthritis patients can improve their quality of life. Significantly low medication adherence (88%) in rheumatoid arthritis patients was due to low socioeconomic status and increased age

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