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Anxiety and Depression in Rheumatoid Arthritis Patients and its Impact on the Quality of Life

Ishma Arif, Anila Nisar, Anum Rasheed, Aanum Misbah Hasanat, Amber Iltaf

Abstract:

Objective: To determine the frequency of depression and anxiety among patients with rheumatoid arthritis (RA) and to assess its impact on the quality of life.

Study Design and Setting: This cross-sectional study was conducted in KRL hospital Islamabad from 1-January-2025 to 31-July-2025.

Methodology: 115 patients aged 18 years or older with a confirmed diagnosis of RA were included. To evaluate disease severity, standardized criteria i.e. the Disease Activity Score involving 28 joints (DAS28) was employed. The Hospital Anxiety and Depression Scale (HADS), a validated instrument, was used to measure symptoms related to depression and anxiety. The impact on patients' quality of life was assessed using the Health Assessment Questionnaire Disability Index (HAQ-DI).

Results: 15 participants (13.0%) were male, while 100 participants (87.0%) were female. The mean duration of RA was 7.70 (±6.41) years. Among the participants, 30 patients (26.1%) were identified as experiencing depression, whereas 22 patients (19.1%) were found to have anxiety. Mean ESR, tender joint count (TJC), swollen joint count (SJC) and VAS score were significantly high in patients with depression and anxiety. The DAS-28 scores averaged 4.88 (±1.36) for those with anxiety/depression versus 3.85 (±1.26) for those without (P-value <0.0001) showing moderate disease activity in both groups. The HAQ-DI score averaged 1.33 (±0.84) for individuals with anxiety/depression as compared to 0.77 (±0.68) for those without (P-value <0.0001).

Conclusion: There is a considerably high prevalence of anxiety and depression among RA patients with a significant impact on the quality of life.

Keywords: Anxiety, DAS-28, depression, HADS, HAQ-DI, rheumatoid arthritis

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INTRODUCTION:

Rheumatoid arthritis (RA), a chronic systemic inflammatory disorder comprising of both articular and extra articular symptoms is an autoimmune condition resulting in progressive joint damage and impaired quality of life.[1] Despite ongoing research, the exact etiology of this condition remains unclear, though multiple studies show a complex interaction between various factors such as genetic susceptibility, environmental exposures, and aberrant autoimmune responses leading to disease onset and progression.[2] Autoantibodies present in rheumatoid arthritis such as rheumatoid factor (RF) and anti-citrullinated protein antibodies (ACPA) can be detected years before the onset of the disease and are usually associated with more severe manifestations.[3] A variety of immune cells including T cells, B cells, macrophages, and dendritic cells, are involved in the immune dysregulation which leads to synovial inflammation and eventual joint damage.[4]

Even though RA can affect individuals of all ages, it is most commonly diagnosed in patients between 40 and 60 years of age, with a female-to-male predominance of

approximately 2–3:1.[5] The global prevalence of RA ranges from around 0.5% to 1%, with slight variations present due to differences in geographical regions, ethnicity, and study methodology.[6] In addition to joint inflammation and destruction, RA is a multisystem disease with extra-articular manifestations as well. These include cardiovascular complications, such as accelerated atherosclerosis and increased risk of myocardial infarction, pulmonary involvement, hematologic abnormalities, renal involvement and metabolic bone disease leading to osteoporosis.[7] Patients also report symptoms of fatigue, sleep disturbances, and chronic pain leading to significant functional impairment and reduced quality of life.[8] Psychological conditions such as anxiety and depression are commonly seen in RA population and these further contribute to the disease burden.[9]

Studies show that chronic inflammation is a major contributing factor to the increased incidence of depression seen in rheumatoid arthritis (RA), resulting in observation of a decline in the health-related quality of life (HRQoL).[10] Since there is a close relationship between mental health and RA disease activity, factors such as pain, functional limitations, and fatigue, have a major impact on the psychological well-being of the patient. Studies indicate that the prevalence of depression among patients with RA is estimated to be around two to three times greater than the normal population.[11] A recent meta-analysis reported that approximately 17.9% of patients with RA experience depressive symptoms, with lifetime prevalence reaching 32.4%, emphasizing on the persistent and substantial burden of mood disorders in this population.[12] Psychological comorbidities often emerge within a few years of disease onset. Within the initial five years of the disease, approximately 30% of RA patients develop depression, while 20% experience anxiety disorders, demonstrating a sequential relationship between the disease course and mental health complications.[13] Both depression and anxiety in RA have been consistently associated with higher levels of disease activity, greater amount of pain, reduced physical function, and poor HRQoL, emphasizing on the effect of psychological distress on patient outcomes.[14] Therefore, routine screening for the presence of features of depression and anxiety in patients with RA, is necessary for the introduction of mental health interventions into disease management strategies to ensure both physical and psychological well-being of patients.[13,14] Chronic diseases like RA, can significantly influence an individual's quality of life. Factors such as chronic pain, social and functional impairments, disability leading to unemployment, and adverse effects from medications all play a crucial role in this impact. Furthermore, systemic inflammation in RA has also been associated with impaired cognitive function, including deficits in attention, memory, and executive functioning, which can further deteriorate daily functioning and self-management of the disease.[15]

Apart from this, psychological comorbidities are also common in RA such that depression and anxiety frequently co-occur with the disease. This is linked to higher pain perception levels, greater functional impairment, and significantly lower health-related quality of life (HRQoL).[16]

Prospective cohort data suggests that the presence of depressive and anxiety symptoms in RA patients is linked with markedly decreased chances of achieving clinical remission over a two-year follow-up period. [17] This emphasizes on the bidirectional relationship between psychological health and RA disease activity, stressing that mental health not only affects patient well-being but also influences the long-term clinical outcomes. The present study aims to establish the prevalence of depression and anxiety among patients with RA and to evaluate their impact on health-related quality of life, thereby providing valuable insight into the complex nature of this disease.

METHODOLOGY:

This cross-sectional study was conducted at KRL Hospital, Islamabad, from 1st January 2025 to 31st July 2025 after approval of the synopsis by the Ethical Review Committee (KRL-HI-PUB-ERC/Feb25/60). The study aimed to evaluate the prevalence of depression and anxiety among patients suffering from rheumatoid arthritis (RA) and to assess their impact on health-related quality of life (HRQoL). An informed written consent was obtained by all participants before enrollment. A total of 115 individuals aged 18 years or more with a confirmed diagnosis of RA, based on the 2010 ACR/EULAR classification criteria, [18] were included from outpatient rheumatology department. Individuals were excluded if they had severe cognitive impairment, current psychiatric disorders under medical treatment, or had comorbid conditions resulting in physical disability, such as heart failure, decompensated chronic liver disease, or stage V chronic kidney disease requiring hemodialysis. Pregnant and breastfeeding females were also excluded. This ensured that physical or psychiatric comorbidities did not alter the assessment of psychological symptoms or quality of life. The study sample size was calculated using an estimated prevalence of anxiety 8.1%,[19] desired precision level 6.0% and confidence level 95%. Data collection was done through consecutive sampling, where all eligible patients attending the rheumatology OPD during the established study period were invited to participate. Clinical and demographic information, which included age, gender, duration of the disease, comorbidities, socioeconomic status, educational status and current medications, was collected using a well-structured questionnaire and patient medical records. Assessment of disease activity was done using DAS28-ESR score which included the swollen joint count (SJC), tender joint count (TDJ), patient global health assessment (VAS) and ESR. A score of <2.6 showed remission, 2.6–3.2 indicated

low disease activity, >3.2–5.1 signified moderate disease activity, and a score of >5.1 was classified as high disease activity. The Hospital Anxiety and Depression Scale (HADS), a validated 14-item questionnaire, was used to assess symptoms of anxiety and depression. A score of 0–7 was classified as normal, 8–10 as borderline abnormal (possible cases), and 11–21 as abnormal (probable cases). For estimation of prevalence, participants with scores =11 were considered to have probable anxiety or depression. Patients' functional status and quality of life were determined using the Health Assessment Questionnaire Disability Index (HAQ-DI score). Scores were categorized as =1 for mild disability, >1–2 for moderate disability, and =2 for severe disability.

Data was entered and analyzed by using SPSS version 29. Descriptive statistics was applied on the study population. Percentages and frequencies were included for categorical variables such as anxiety and depression. The Chi-square test was applied to assess association between psychological comorbidities (anxiety and depression) and clinical and demographic variables, such as disease activity (DAS28-ESR), functional limitations (HAQ-DI), socioeconomic status, and level of education. Additionally, odds ratios (ORs) with 95% confidence intervals were also used to calculate the strength of associations between risk factors and the presence of anxiety or depression. A p-value = 0.05 was considered statistically significant for the analyses. This allowed establishing potential predictors of psychological diseases in RA patients while accounting for the influence of various demographic factors.

RESULTS:

At baseline, the study population had a mean age of 49.1 ± 12.6 years, with age variation from 22 to 74 years, indicating that RA in this study predominantly affected middle-aged adults. The study was predominantly female, with 100 female participants (87.0%) as compared to 15 males (13.0%), strengthening the previously well-established higher prevalence of RA among women. The majority of the patients were married (n=106; 92.2%), while 9 (7.8%) were unmarried, suggesting that social support system may play a role in mental health outcomes. With regards to the socioeconomic status, the majority of participants belonged to the lower socioeconomic class (n=64; 55.7%), followed by the middle class (n=50; 43.5%), and only one participant (0.9%) was classified as upper socioeconomic class, highlighting a stark difference among the three subsets of income class. A substantial proportion of patients had associated comorbid conditions (n=64; 55.7%), whereas 51 participants (44.3%) had no other illnesses. The most prevalent comorbid conditions were hypertension (32.2%), dyslipidemia (20%), and type 2 diabetes mellitus (14.8%) [Figure 1], reflecting an association between RA, systemic inflammation, and metabolic disorders. Importantly, among participants with comorbidities, 25 individuals (39.1%) reported depression, and 24 individuals (35.8%) experienced anxiety, indicating that patients with comorbid conditions were particularly susceptible to psychological distress.

The average duration of rheumatoid arthritis (RA) among participants was 7.7 ± 6.4 years. Patients were classified as being seropositive if rheumatoid factor (RF) and/or anti–citrullinated protein antibodies (ACPA) were present, and seronegative if both of them were absent. The majority of participants turned out to be seropositive (n=109; 94.8%), with only a small fraction (n=6; 5.2%) classified as seronegative, consistent with the previously established predominance of seropositivity among RA patients. RA-related joint deformities were observed in 16 participants (13.9%), and only 2 patients (1.7%) had undergone total knee replacement, signifying that advanced structural damage was present in only a minority of cases. The average erythrocyte sedimentation rate (ESR) was 34.0 ± 21.1 mm/hr, representing ongoing systemic inflammation. Regarding functional capacity, 9.6% of patients were able to perform daily activities only minimally, 20.0% moderately, 31.3% mostly, and 39.1% were able to complete all tasks with no limitations. The mean DAS28-ESR in our patients was 4.15 ± 1.37, which showed moderate disease activity. The HAQ-DI score had an average of 0.94 ± 0.77, indicating mild to moderate functional impairment in our patients [Table 2]. A significant proportion of 30 (26.1%) out of a total of 115 patients were identified with depression, while 22 patients (19.1%) were found to have anxiety suggesting a considerable burden of mental health issues in RA patients.

Table 3 presents the association of various risk factors with the frequency of anxiety or depression among participants, including the means and standard deviations (SD) for each relevant variable. The duration of rheumatoid arthritis (RA) was slightly longer in individuals with anxiety/depression to those without but it was not found to be statistically significant averaging (P-value of 0.06). The erythrocyte sedimentation rate (ESR) was significantly higher in those with anxiety or depression, recording an average of 40.14 (±24.45) mm/hr versus 31.43 (±19.13) mm/hr in those without, with a P-value of 0.014. Additionally, the tender joint count and swollen joint count were both significantly higher in the anxiety/depression group, with TJC averaging 4.91 (± 6.03) compared to 2.06 (± 3.64) in those without (P-value of 0.04), and SJC averaging 3.58 (±4.52) compared to 1.85 (±3.17) in the non-anxious/depressed group (P-value of 0.02). The visual analog scale (VAS) score, reflecting perceived pain, was substantially higher in individuals experiencing anxiety/depression, averaging 73.23 (±19.65), compared to 49.01 (±30.92) for those without, with a highly significant P-value of less than 0.0001. Regarding the ability to carry out daily activities, among individuals with anxiety or depression, (23.5%) reported only being able to perform activities a little, as opposed to just 3.7% of those without

anxiety or depression (P-value of 0.002). The DAS-28 scores, indicating disease activity, averaged 4.88 (±1.36) for those with anxiety or depression versus 3.85 (±1.26) for those without, with a highly significant P-value of less than 0.0001. According to the DAS-28 score, there was moderate disease activity in both groups but there was a significant difference in the score between those having anxiety or depression as compared to those without them. Finally, the HAQ-DI score also showed a significant difference, averaging 1.33 (±0.84) for individuals with anxiety or depression compared to 0.77 (±0.68) for those without, again with a P-value of less than 0.0001. These findings highlighted a significant association between various risk factors and the occurrence of anxiety and depression in our patient population [Table 3].

DISCUSSION:

Approximately 18 million individuals worldwide were affected by rheumatoid arthritis (RA) by 2019, and the prevalence is expected to rise to 31.7 million by 2050, reflecting a drastic increase in the disease burden over time.[20] RA is a chronic, systemic inflammatory disorder which not only has a physical impact but it also places substantial burden on psychological and social functioning capacity of affected individuals. Patients frequently complain of severe pains, persistent fatigue, and joint deformities leading to limitations in daily activities. All of these factors have a negative impact on the occupational, personal and social life of individuals. [21]

Apart from these challenges, the chronic and incurable nature of RA also places significant psychological stress on these individuals. Studies reveal an increased prevalence of anxiety and depression in patients with RA, leading to reduced health-related quality of life (HRQoL).[21,22] According to another Indian cohort study, there is a strong correlation between psychological distress and poor overall functioning capacity of individuals, indicating that poor mental health can have a greater negative impact on physical disability.[21] Likewise, it has been suggested that there is an increased need for diagnosis and medical management of depression in RA patients for a better outcome of the disease.[22]

All these studies stress on the multifactorial burden of RA, where physical disability, chronic pain, and psychological comorbidities interact with each other to reduce the daily functioning of individuals. This results in patient dissatisfaction and an impaired quality of life. Hence, understanding the prevalence and impact of anxiety and depression in patient with RA is crucial to develop better individualized management strategies that are able to address both the physical and mental health needs of these patients.[20,21,22]

This study has a similar aim to establish the relationship between rheumatoid arthritis (RA) and mental health

Figure 1. Prevalence of comorbidities

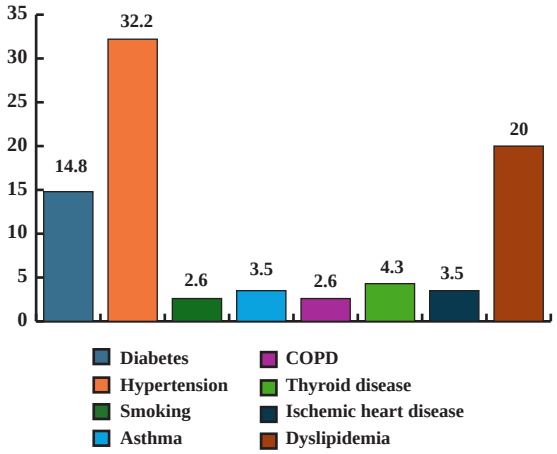

Table 2. Disease Characteristics of Study Patients

Duration of RA (mean ± SD)	7.70±6.41
Gender (%)	
Male	15 (13.0%)
Female	100 (87.0%)
Type of RA (%)	
Seropositive	109 (94.8%)
Seronegative	6 (5.2%)
RA Related Deformity (%)	16 (13.9%)
ESR (mean ± SD)	34.0±21.1
Able to Carry Out Activities	
A little	11 (9.6%)
Moderate	23 (20.0%)
Mostly	36 (31.3%)
Completely	45 (39.1%)
DAS-28 Score (mean ± SD)	4.15±1.37
HAQ-DI score (mean ± SD)	0.94±0.77

Table 3. Association of Risk Factors with Occurrence of Anxiety/Depression

	Anxiety/Depression		**P-value**
	Yes (N=34)	**No (N=81)**	
Age (Years)	49.85±11.18	48.81±13.24	0.68
Duration of RA (Years)	9.54±7.02	6.93±6.02	0.06
Gender (%)			
Male	5 (14.7%)	10 (12.3%)	0.73
Female	29 (85.3%)	71 (87.7%)	
ESR	40.14±24.45	31.43±19.13	0.014
VAS Score	73.23±19.65	49.01±30.92	<0.0001
Able to Carry Out Activities			
A little	8 (23.5%)	3 (3.7%)	0.002
Moderate	9 (26.5%)	14 (17.3%)	
Mostly	10 (29.4%)	26 (32.1%)	
Completely	7 (20.6%)	38 (46.9%)	
DAS-28 Score	4.88±1.36	3.85±1.26	<0.0001
HAQ-DI score	1.33±0.84	0.77±0.68	<0.0001

conditions, particularly depression and anxiety, with its main focus on the Pakistani population. As previously discussed, RA is a chronic disease that not only affects the physical health of individuals but also has a profound impact on their psychological and social well-being. Having established that, understanding the mental health burden in patients with RA is crucial since it has also shown to exacerbate pain perception in these individuals reducing their functional ability and diminishing their overall HRQoL.

In line with these objectives, the central idea of this study is to determine the prevalence of depression and anxiety among individuals living with RA in Pakistan, as the current data is quite limited. Additionally, this study was also conducted to assess the impact of these psychological conditions on the daily functioning of these individuals along with their coping strategies, providing insight into the interaction of mental health with chronic disease management. Through this, our study aims to contribute evidence for better patient care by integrating mental health screening into routine RA management whenever required. Understanding these dynamics is essential for improving the current management plans and providing better patient satisfaction leading to improved overall outcomes. It has been noted however that the rate of anxiety and depression among RA patients vary considerably across studies. This difference is mainly due to the variations in the assessment tools used along with their cutoff values. For example, when using the Hospital Anxiety and Depression Scale (HADS), the prevalence for depression has been estimated to range from approximately 14.8% to 48%, depending on the thresholds used to diagnose patients in different studies. Similarly, the prevalence of anxiety can also vary within a range in different studies and this reflects inconsistencies produced by using different assessment criterias and study methodologies.[19] For the purpose of our study, a HADS cutoff value of =11 was used to define probable depression and anxiety which is consistent with the widely accepted practice for diagnosing these conditions. Using this threshold, the prevalence of depression was found to be 26.1% in our study, while 19.1% of the patients were diagnosed with anxiety. This highlights a significant psychological burden in patients suffering from RA. In comparison, a cross-sectional study conducted by Ionescu et al. (2025) reported a prevalence of depression in only 10.0% of patients with RA and anxiety in 8.1%.[19] These differences signify the importance of using proper cutoff values and assessment tools based on demographic variables and geographical locations along with careful interpretation of data.

Another study carried out by Uda M et al. (2021) found the prevalence of anxiety to be 17.6% and 27.7% for depression in RA patients,[23] and these values are consistent with the findings of our study as well. The results show that a substantial proportion of RA patients experience psychological comorbidities, but the prevalence rates may differ depending on demographic characteristics and the study methodology used. Studies like Enginar and Nur have reported even higher rates of prevalence, with 50.3% experiencing depression and 25.3% of RA patients suffering from anxiety.[24] Similarly, research from Saudi Arabia by Alanazi et al. (2024) also found an increased prevalence of depression (42.4%) and anxiety (36.3%) in their study further strengthening the fact that these mental health issues are a global concern resulting in a greater disease burden.[25] Studies have also established that the severity of depression and anxiety in rheumatoid arthritis (RA) is closely linked to the underlying disease activity and this further creates a negative impact on the long-term outcomes. Fragoulis et al. (2020) evaluated depression and anxiety in an early RA cohort using the Hospital Anxiety and Depression Scale (HADS) and found a significant association between HADS scores and DAS28-CRP measurements at both six and twelve months, highlighting the importance of psychological symptoms on both objective and subjective disease activity.[26]

A systematic review and meta-analysis by Machin et al. (2020), which combined data from five studies, further revealed that symptoms of anxiety were associated with higher DAS28 scores and poor quality of life, showing the implications of psychological comorbidities on patient well-being.[27] Other evidence suggests that depression and anxiety in RA are often associated with greater tender joint counts and higher patient global assessment scores, reflecting the impact of mental health on the subjective components of disease activity assessment scores.[19] Our local data also support these global findings. A 2024 cross-sectional study conducted in Lahore by Haq et al. reported that patients with RA having a higher disease activity experienced significantly worse HRQoL, due to impairment in physical ability, pain, and associated anxiety and depression.[28] Overall, these studies highlight the complex relationship between RA disease activity and psychological health, emphasizing that mental health comorbidities not only influence disease outcomes but may also affect perception of disease severity. The primary purpose of our study was to establish the prevalence of anxiety and depression in the Pakistani population suffering from this autoimmune condition. The results of our study emphasize on the need for a multidisciplinary care and approach for integration of a better management plan in RA patients. Routine mental health screening may lead to early identification, diagnosis and management of psychological conditions alongside standard RA treatment. Our data also highlights a clear gap in early recognition and diagnosis of these illnesses due to which they are not properly addressed. This research adds to the existing body of knowledge by providing evidence on the psychological burden of RA in Pakistani population, a region where mental health conditions remain vastly under recognized so the data is also quite limited. By documenting the prevalence and impact of these mental health illnesses

in our population, the study offers insight into not only the extent of these conditions but also their impact on the daily functioning of individuals. The significance of these results should ensure patient education and understanding of their disease so measures can be taken to reduce disease burden and improve their quality of life.

However, there are also some limitations in our study. Selection bias may have been introduced as the participants were enrolled from specific clinical settings. Only diagnosed patients of RA were included in our study who came for their routine checkup. Hence the generalizability of these findings to the broader RA population may be limited which may affect the robustness of these conclusions. Additionally, our sample size was also relatively small so future research targeting larger and more diverse samples are required to validate these findings. All this may lead to more accurate results and guide the development of better care facilities.

CONCLUSION:

The prevalence of anxiety and depression among patients diagnosed with rheumatoid arthritis (RA), is quite high having a significant impact on the health-related quality of life. The severity of RA also appears to be affected with the presence of these psychological conditions.

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Authors Contribution:
Ishma Arif: Study design, conception statistical analysis, data collection
Anila Nisar: Literature review, proof reading
Anum Rasheed: Data collection, data interpretation
Aanum Misbah Hasanat: Proof reading
Amber Iltaf: Data collection

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