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# THE PREVALENCE OF ANXIETY, DEPRESSION, AND SLEEP DISTURBANCES AMONG THE RHEUMATOID ARTHRITIS PATIENTS

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## ABSTRACT

**Objective:** To evaluate the prevalence of depression, anxiety and sleep disturbances among rheumatoid arthritis (RA) patients and gender disparities attending the outpatient clinics of a tertiary care hospital in Khyber Pakhtunkhwa, Pakistan.

**Methodology:** The cross-sectional descriptive study was carried out on 250 patients visiting the orthopaedic OPD of teaching hospitals of Khyber Pakhtunkhwa from June 2022 to February 2023. A purposive sampling technique was used. Informed consent was taken from the patients. A questionnaire regarding anxiety, depression, and sleep disturbance was given to the patients. Data were collected using a pre-validated scale, Hospital Anxiety and Depression Scale (HADS) (Cronbach  $\alpha = .78$  for anxiety subscale and Cronbach  $\alpha = .86$  for depression subscale) and LEVEL 2—Sleep Disturbance—Adult (Cronbach  $\alpha = .856$ ).

**Results:** The study included 250 patients with a mean age of  $41.89 \pm 7.82$ . Most of the patients were female (64.0%), and the average disease duration was  $8.6 \pm 6.2$  years. Most of the patients belonged to middle-class families. On the HADS scale, females reported increased anxiety ( $\chi^2 = 39.946, p = 0.001$ ) along with the depression level ( $\chi^2 = 53.513, p = 0.001$ ) compared to males. Similarly, females experienced significantly more sleep disturbances ( $\chi^2 = 48.524, p = 0.001$ ). However, duration of the disease was not found to be associated with the prevalence of anxiety, depression, or sleep disturbances.

**Conclusion:** Rheumatoid arthritis (RA) is linked with adverse impacts on psychological health. The results indicate that rheumatoid arthritis patients had comorbid anxiety, depression, and sleep disturbances. However, females are at higher risk of such comorbidities.

**Keywords:** Rheumatoid Arthritis; Anxiety; Depression; Sleep Disturbance; Mental Health

## INTRODUCTION

Rheumatoid arthritis (RA) is a persistent and im-medicable ailment that distresses the joints, instigating pain and inflammation. It is estimated that 0.67% of the adult population has this disease.<sup>1</sup> Research has shown that the co-occurrence of mental health problems is prevalent among individuals with RA. A recent scientific research study published in the journal Arthritis Care & Research investigated the prevalence of stress among rheumatoid arthritis patients and found that more than sixty per cent of the participants reported experiencing significant levels of stress, highlighting the need for targeted stress management interventions in this population.<sup>2</sup> For instance, an estimated fourteen per cent of individuals are affected by anxiety, and the occurrence of depression varies between 16.8-38.8 per cent.<sup>3,4</sup> These rates are much higher than those observed in the peoples of the England generally, for

instance 5.9% of adults experience anxiety, and 3.3 per cent experience depression.<sup>5</sup> in comparison to the normal population, the incidence of depression is more common among RA patients, and studies have linked depression and depressive symptoms with impaired functioning and poor clinical outcomes. Despite the high rates of comorbid anxiety and depression in individuals with RA, these conditions are commonly overlooked and inadequately addressed.<sup>6</sup> Moreover, they are linked with amplified morbidity and mortality.<sup>7</sup> A systematic review of seven studies suggests that depression may be linked to an exacerbation of disease activity in individuals with RA<sup>8</sup>. Similarly, another systematic review reported that the occurrence of anxiety is also higher in individuals with RA.<sup>9</sup> In rheumatoid arthritis (RA), depression can have an adverse impact on the performance of activities, in the existence of physical signs such as fatigue and pain.<sup>10</sup> In RA, prolonged exposure to cytokines such as IL-1b, tumor necrosis

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factor (TNF)- $\alpha$ , and IL-6 might result in maladaptive reactions to illness behavior, causing symptoms like sadness, anhedonia, pain, and exhaustion.<sup>11</sup> A meta-analysis revealed that between 14% to 48% of RA patients have depression, and 16.8% of those with a diagnosis of RA have serious depressive disorders.<sup>12</sup> Patients with RA frequently experience sleep disruptions, which can lower their quality of life. Patients with RA may experience sleep difficulties for a variety of reasons, including pain, inflammation, adverse drug reactions, and psychological issues. Patients with rheumatoid arthritis frequently experience sleep disturbances, such as difficulty falling and staying asleep, as well as early morning awakenings. These disturbances can lead to fatigue, difficulty concentrating, and increased pain sensitivity.<sup>13</sup> An estimated 0.5% of Pakistan's population is affected by RA, which can cause anxiety, depression, and sleep disturbances, negatively affecting the patient's quality of life.<sup>14</sup> A study found that sleep disorders, such as insomnia, daytime sleepiness, and restless legs syndrome, are prevalent among RA patients but are not related to disease activity.<sup>15</sup> RA patients often face mental health issues due to sleep disturbances caused by chronic pain and discomfort. Medications for RA can also disrupt normal sleep patterns, leading to insomnia or daytime drowsiness. Chronic pain and discomfort from RA can lead to restless nights, making it hard to find a comfortable sleeping position. Disturbed sleep exacerbates feelings of anxiety and depression, common in chronic disease conditions. Furthermore, medications for RA can disrupt normal sleep patterns, contributing to insomnia or daytime drowsiness. The resultant fatigue disrupts the body's natural sleep-wake cycle, creating a vicious cycle of poor sleep and heightened stress. Managing sleep disturbances is crucial in improving the overall quality of life and mental health of RA patients. Living with a chronic illness like RA can be challenging and may significantly impact an individual's mental health. Anxiety,

depression, and sleep disturbances are common among RA patients and can negatively affect their quality of life. However, the prevalence of these conditions among RA patients in Pakistan has not been extensively studied. This research paper aims to investigate the prevalence of anxiety, depression, and sleep disturbances among RA patients with respect to gender in Khyber Pakhtunkhwa. By understanding the prevalence of these conditions, healthcare professionals can develop better strategies to improve the quality of life of RA patients in Khyber Pakhtunkhwa.

## METHODOLOGY

A cross-sectional study was conducted on 250 patients visiting the orthopaedic OPD of teaching hospitals of Khyber Pakhtunkhwa from June 2022 to February 2023. A purposive sampling technique was used, and all participants provided informed consent. The paper was approved by the institutional review board, and written informed consent was obtained from all participants. The inclusion criteria were adult patients (age > 18 years) with a diagnosis of RA according to the American College of Rheumatology criteria.<sup>15</sup> Patients with other chronic diseases, cognitive impairment, or language barriers were excluded from the study. A questionnaire regarding anxiety, depression, and sleep disturbance was given to the patients. Data was gathered utilizing a pre-validated instrument, the Hospital Anxiety and Depression Scale (HADS), which demonstrated reliability with Cronbach's alpha values of .78 for the anxiety subscale and .86 for the depression subscale, in addition to the LEVEL 2—Sleep Disturbance—Adult scale.

## RESULTS

The patients' average age was  $41.89 \pm 7.82$  years. Of the 250 patients, 64.0% of the sample consisted of female patients. The patients' condition had been present for an average of  $8.6 \pm 6.2$  years. The majority of

the patients fell into the middle class socioeconomic group. When examining anxiety levels using the Hospital Anxiety and Depression Scale (HADS), it was found that higher levels of anxiety was reported by the females ( $\chi^2= 39.946$ ,  $p=0.001$ ). Similarly, in terms of depression, females also reported higher levels than males ( $\chi^2= 53.513$ ,  $p=0.001$ ). Additionally, females exhibited a significantly greater prevalence of sleep disturbances compared to males ( $\chi^2= 48.524$ ,  $p=0.001$ ).

However, the duration of the disease did not show any significant association with the incidence of any variables. As per the findings, the majority of the patients were female, and when compared to males, they reported higher levels of anxiety, sadness, and sleep disruptions. The frequency of these psychological symptoms did not seem to be influenced by how long the illness lasted.

## DISCUSSION

RA is a persistent autoimmune disease that affects millions of people globally, with females occurring 2-3 times more likely to develop the condition than males. Research has shown that females with RA are also at higher risk for mental health conditions i.e., sleep disturbances, Anxiety and depression. The incidence of anxiety in females with RA is thought to be influenced by the chronic pain, disability, and uncertainty associated with the disease. These factors can cause feelings of anxiety and fear about the future. Depression is another mental health condition that is common among females with RA. Depression is characterized by feelings of sadness, hopelessness, and loss of interest in one's once enjoyable activities. Our research suggests that females with RA are more likely to experience anxiety than males. A systematic review and 72 studies of a meta-analysis involving over 13,000 rheumatoid arthritis patients showed that the prevalence of anxiety ranged from 16% to 60% and depression ranged from 14%

Table 1: Demographics of the sample

	f (%)	SD
Age	<35	60 (24.0)
	35-45	173 (47.2)
	>45	29 (28.8)
Gender	Male	90 (36.0)
	Female	160 (64.0)
Marital Status	Unmarried	27 (10.8)
	Married	184 (73.6)
	Widow	24 (09.6)
	Divorced	15 (06.0)
Socioeconomic Status	Lower	48 (19.2)
	Middle	173 (69.2)
	High	29 (11.6)

Table 2: Prevalence of anxiety in rheumatoid arthritis patients across the gender

	Anxiety			Chi-square value	p-value
	Normal	Borderline	Abnormal		
Male	08 (8.9)	46 (51.1)	36 (40.0)	39.946	0.001
Female	00	40 (25.0)	120 (75.0)		

Table 3: Prevalence of depression in rheumatoid arthritis patients across the gender

	Depression			Chi-square value	p-value
	Normal	Borderline	Abnormal		
Male	33 (36.7)	15 (16.7)	42 (46.7)	53.513	0.001
Female	07 (4.4)	14 (8.8)	139 (86.9)		

Table 4: Prevalence of sleep disturbance in rheumatoid arthritis patients across the gender

	Sleep Disturbance				Chi-square value	p-value
	Normal	Mild	Moderate	Severe		
Male	08 (8.9)	25 (27.8)	42 (46.7)	15 (16.7)	48.524	0.001
Female	49 (30.6)	32 (20.0)	62 (24.8)	74 (29.6)		

to 47%.<sup>15</sup> A study of 80 rheumatoid arthritis patients in Egypt found that 70% had symptoms of anxiety, and 66.2% had symptoms of depression.<sup>16</sup> Similarly a case-control study reported a higher prevalence of depression and anxiety in the rheumatoid arthritis group.<sup>17</sup> Research has shown that the prevalence of depression is higher in females with RA than in males with RA. This may be due to the emotional and physical burden of managing a chronic illness and the impact it can have on daily life.<sup>18</sup> Fatigue in patients with rheumatoid arthritis (RA) is primarily attributed to depression, disability, and sleep disturbance.<sup>19</sup> A meta-analysis of 16 studies involving over 3,000 rheumatoid

arthritis patients found that depression was associated with worse disease activity, physical function, and quality of life.<sup>20,21</sup> Another study reported that depression is more common among rheumatoid arthritis patients than among the healthy population.<sup>22</sup> Sleep disturbance is a significant issue among patients with rheumatoid arthritis (RA), contributing to the overall burden of the disease.<sup>23</sup> The causes of sleep disturbance in RA are multifactorial and include disease-related factors such as pain, joint stiffness, and disease activity, as well as comorbid conditions like depression and anxiety.<sup>24</sup> Patients who have rheumatoid arthritis (RA) frequently have sleep issues as a result of the condi-

tion itself and the drugs used to treat it, like corticosteroids. Their quality of life may be considerably impacted as a result of increasing weariness, pain, and trouble doing daily tasks. Moreover, insufficient sleep has been connected to heightened disease activity and a higher chance of developing other health problems. In individuals with arthritis, the prevalence of unrefreshing sleep and symptoms of insomnia was 11.9% and 24.8%, respectively.<sup>25</sup> In a study by Abbasi et al., the prevalence of sleep disorders among 100 rheumatoid arthritis (RA) patients was found to be 72%.<sup>26</sup> Building on these findings, a more recent survey conducted by Westhovens et al. involving 305 patients revealed that inadequate control of RA is associated with decreased sleep quality, likely attributed to pain-related arousals.<sup>27</sup> Study results showed that rheumatoid arthritis pain could disturb the patient's sleep patterns.<sup>28</sup> It was estimated that forty-five to fifty-three per cent of depression, anxiety, and sleep disturbance can occur comorbid with chronic pain.<sup>29</sup> Anxiety, depression, and sleep disturbances are prevalent mental health conditions among females with RA. These mental health conditions are thought to be influenced by the emotional and physical burden of managing a chronic illness. Healthcare providers should be aware of the higher prevalence of these conditions in females with RA and provide appropriate screening, diagnosis, and treatment. Additionally, the public should be educated about the importance of mental health and the availability of resources to address these conditions, especially for those with chronic illnesses like RA. Overall, raising awareness and addressing mental health concerns in females with RA is essential to improving their overall health and well-being.

## CONCLUSIONS

Rheumatoid arthritis (RA) is associated with adverse changes in mental health. The results indicate that rheumatoid arthritis patients had comorbid anxiety, depression, and

sleep disturbances. Females are at higher risk of such comorbidities. The incidence of anxiety, depression, and sleep difficulties among RA patients attending the rheumatology outpatient clinics at a tertiary care hospital in Pakistan is significant. Anxiety, depression, and sleep difficulties were shown to be more common in female patients. The study emphasizes how important it is for medical professionals to treat RA patients' psychosocial needs in addition to their physical problems. Patients with RA may live better lives and avoid social isolation and impairment by treating these psychological issues early on. Additional research is required to examine the risk factors and predictors of psychological problems in RA patients in Pakistan.

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### Author's Contribution

ZW conceived the idea, designed the study and collected the data, performed data analysis, ZW WA designed the study and collected the data, and performed data analysis, UK conceived the idea helped in the write up of the manuscript. All authors made substantial intellectual contributions to the study.

### Conflict of Interest

Authors declared no conflict of interest

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None

### Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.