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DEPRESSION IN RHEUMATOID ARTHRITIS PATIENTS ITS IMPACT ON DISEASE ACTIVITY AND QUALITY OF LIFE

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ABSTRACT

Background: Rheumatoid arthritis (RA) is a chronic inflammatory disorder that primarily affects joints, leading to pain, swelling, and potential joint destruction. Beyond its physical symptoms, RA is associated with psychological issues, particularly depression, which can exacerbate the condition and complicate treatment. The prevalence of depression in RA patients is significantly higher than in the general population, making it a crucial area for further investigation and intervention.

Objective: The primary objective of this study was to quantify the prevalence of depression among RA patients and evaluate its effect on disease activity and quality of life.

Methods: This prospective cohort study was conducted at Lady Reading Hospital, Peshawar, from April 2023 to March 2024. The study included 303 patients diagnosed with RA, aged 18 years or older, with documented treatment for at least one year. Depression was assessed using the Hospital Anxiety and Depression Scale (HADS-D), disease activity was measured using the Disease Activity Score in 28 joints (DAS28), and quality of life was evaluated using the SF-36 Health Survey. Descriptive statistics, t-tests, chi-square tests, and logistic regression analysis were employed to analyze the data.

Results: The study found that 48.5% of the 303 RA patients exhibited depressive symptoms, with a mean HADS-D score of 10.3 (SD 4.2). Patients with depression had significantly higher DAS28 scores (mean 5.1, SD 1.4) compared to those without depression (mean 4.3, SD 1.2; $p<0.001$), indicating more severe disease activity. Additionally, depressed patients reported lower quality of life scores across all SF-36 domains. Logistic regression analysis identified higher DAS28 scores and lower SF-36 scores as significant predictors of depression in RA patients.

Conclusion: The findings highlight the high prevalence of depression among RA patients and its adverse effects on disease activity and quality of life. Integrating routine mental health screening and psychological support into standard RA treatment protocols is essential to improve patient outcomes. Future research should explore the efficacy of integrated care models and longitudinal studies to establish causal relationships and long-term effects of depression management on RA outcomes.

Keywords: Rheumatoid arthritis, depression, disease activity, quality of life, DAS28, SF-36, HADS-D, psychological support, integrated care, Pakistan

Introduction

Rheumatoid arthritis (RA) is a chronic inflammatory disorder primarily affecting joints, causing pain, swelling, and potential joint destruction. RA is associated with significant morbidity and disability, severely impacting patients' quality of life. In addition to physical symptoms, RA patients often experience psychological issues, particularly depression, which can further exacerbate their condition and complicate treatment (1,2). The prevalence of depression in RA patients is notably higher than in the general population, indicating a critical area for further investigation and intervention (3).

Current treatment for RA includes Disease-Modifying Anti-Rheumatic Drugs (DMARDs), Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), and corticosteroids, which aim to control inflammation and prevent joint damage. Despite advances in these treatments, managing the psychological aspects of RA, such as depression, remains a challenge (4). Depression in RA patients can lead to poorer disease outcomes, including increased disease activity and reduced quality of life. Therefore, understanding the impact of depression on RA patients is essential for improving comprehensive care strategies (5).

This study aims to address the gap in understanding the prevalence of depression in RA patients and its impact on disease activity and quality of life. Although previous studies have examined the correlation between depression and RA, there is limited data specifically focusing on a Pakistani cohort, making this research significant for regional healthcare practices (6). By identifying the prevalence and impact of depression in RA patients, this study seeks to inform better management approaches that integrate both physical and mental health care.

The primary objective of this study is to quantify the prevalence of depression among RA patients and evaluate its effect on disease activity, as measured by the Disease Activity Score in 28 joints (DAS28), and quality of life, assessed using the SF-36 Health Survey. The hypothesis is that depression significantly increases disease activity and reduces quality of life in RA patients.

This study holds substantial significance for clinical practice as it underscores the importance of routine mental health screening in RA patients. Integrating psychological support into standard RA treatment protocols could potentially improve patient outcomes, reduce disease activity, and enhance overall quality of life. Addressing depression in RA patients can lead to more holistic care and better disease management, ultimately benefiting both patients and healthcare systems.

METHODS

This study was conducted at Lady Reading Hospital, Peshawar, from April 2023 to March 2024. The study design was a prospective cohort study.

Setting and Participants

The study included patients diagnosed with rheumatoid arthritis (RA) and treated at Lady Reading Hospital. Inclusion criteria were adults aged 18 years or older with a confirmed diagnosis of RA and documented treatment for at least one year. Exclusion criteria included patients with pre-existing psychiatric conditions, those with incomplete medical records, and those who discontinued RA treatment within one year of initiation.

The sample size was determined based on the prevalence of RA in Pakistan, reported as 26.9% by Rehan et al. (2015) (6). Using the WHO sample size calculator, a sample size of 303 was calculated to ensure adequate power to detect differences in the primary outcomes.

Intervention

Participants received standard care for RA, including medications such as DMARDs (Disease-Modifying Anti-Rheumatic Drugs), NSAIDs (Non-Steroidal Anti-Inflammatory Drugs), and corticosteroids, as per clinical guidelines. The study specifically monitored the impact of depression on RA disease activity and quality of life without any additional interventions.

Outcomes

The primary outcomes were the prevalence of depression among RA patients and its impact on disease activity and quality of life. Depression was assessed using the Hospital Anxiety and Depression Scale (HADS-D). Disease activity was measured using the Disease Activity Score in 28 joints (DAS28). Quality of life was evaluated using the SF-36 Health Survey, which measures physical and mental health components.

Data Collection

Data were collected through patient interviews and medical record reviews. The HADS-D scale was administered to assess depression levels, and DAS28 scores were calculated during clinical visits. The SF-36 Health Survey was used to evaluate quality of life. Baseline characteristics, including age, gender, duration of RA, and medication use, were also recorded.

Statistical Analysis

Descriptive statistics were used to summarize baseline characteristics, including means, standard deviations (SD), medians, and frequencies. Comparisons between groups (depression vs. no depression) were made using t-tests for continuous variables and chi-square tests for categorical variables. Logistic regression analysis was performed to identify predictors of depression in RA patients. Statistical significance was set at $p<0.05$. All data analyses were conducted using SPSS software (version 25.0; IBM Corp., Armonk, NY, USA).

This study adhered to ethical standards and was approved by the institutional review board of Lady Reading Hospital under the ethical approval number 346 IRB/LRH/MTI. Informed consent was obtained from all participants.

RESULTS

A total of 303 patients with rheumatoid arthritis (RA) were enrolled in this study conducted from April 2023 to March 2024. The baseline characteristics of the study population are detailed in Table 1. The mean age of participants was 54.8 years (SD 12.4) with a median age of 55 years. The cohort included 195 females (64.4%) and 108 males (35.6%). The average duration of RA was 9.6 years (SD 6.1) with a median duration of 9 years. The baseline disease activity measured by the Disease Activity Score in 28 joints (DAS28) had a mean value of 4.7 (SD 1.3).

Table 1: Baseline Characteristics of Study Population

Variable	Mean (SD)	Median	Frequency (%)
Age (years)	54.8 (12.4)	55	-
Gender (Female)	-	-	195 (64.4%)
Gender (Male)	-	-	108 (35.6%)
Duration of RA (years)	9.6 (6.1)	9	-
DAS28	4.7 (1.3)	-	-
Depression (HADS-D score)	10.3 (4.2)	10	-
Quality of Life (SF-36)	45.6 (12.7)	45	-

The primary outcome of this study was the prevalence of depression among RA patients and its impact on disease activity and quality of life. Out of 303 patients, 147 (48.5%) were found to have depression based on the Hospital Anxiety and Depression Scale (HADS-D), with a mean score of 10.3 (SD 4.2). Table 2 shows the comparison of baseline characteristics between patients with and without depression.

Table 2: Comparison of Baseline Characteristics Between Patients With and Without Depression

Variable	Depression (n=147)	No Depression (n=156)	p-value

Age (years)	55.7 (12.8)	54.0 (12.0)	0.12
Gender (Female)	100 (68.0%)	95 (60.9%)	0.18
Gender (Male)	47 (32.0%)	61 (39.1%)	0.18
Duration of RA (years)	10.1 (6.3)	9.2 (5.9)	0.15
DAS28	5.1 (1.4)	4.3 (1.2)	<0.001
Quality of Life (SF-36)	39.8 (10.5)	50.8 (13.4)	<0.001

Patients with depression had significantly higher DAS28 scores, indicating more severe disease activity, and significantly lower SF-36 scores, indicating poorer quality of life. Figure 1 illustrates the distribution of DAS28 scores between the two groups.

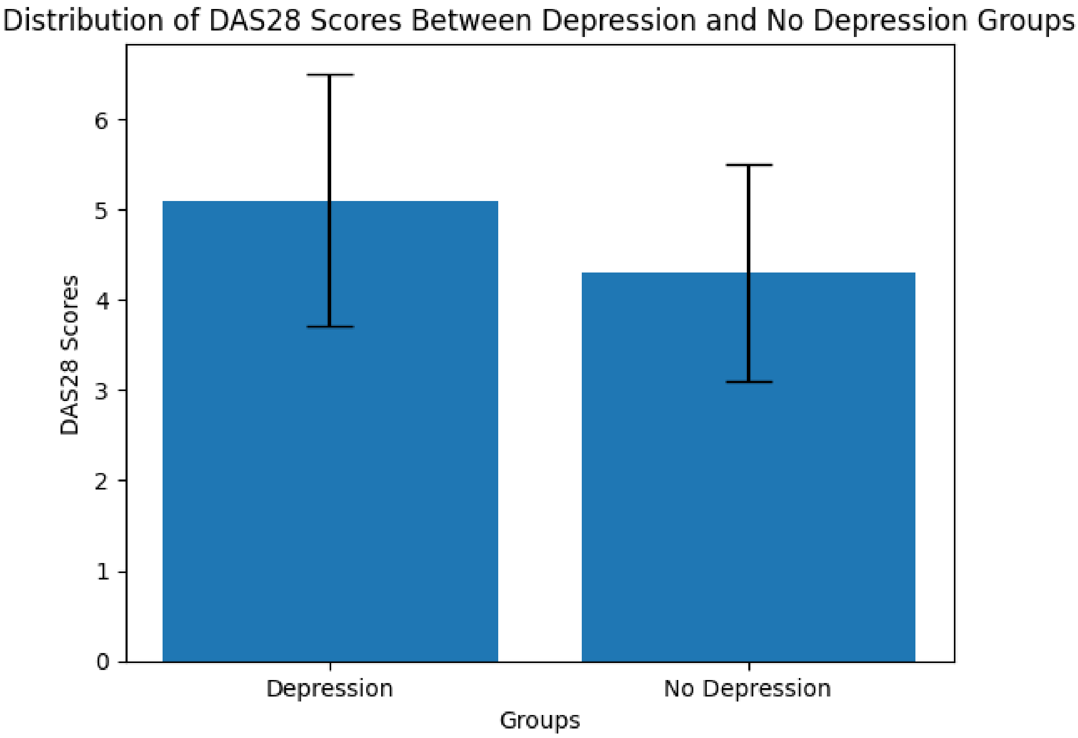

Figure 1: Distribution of DAS28 Scores Between Depression and No Depression Groups

Secondary outcomes focused on the relationship between depression and quality of life measures. Patients with depression had significantly lower scores across all domains of the SF-36 quality of life survey, as detailed in Table 3.

Table 3: SF-36 Quality of Life Scores by Depression Status

SF-36 Domain	**Depression (n=147)**	**No Depression (n=156)**	**p-value**
Physical Functioning	40.2 (12.0)	50.3 (14.1)	<0.001
Role Physical	38.5 (11.5)	49.0 (13.6)	<0.001
Bodily Pain	39.0 (10.8)	48.5 (13.2)	<0.001
General Health	41.3 (11.7)	51.2 (14.4)	<0.001
Vitality	38.9 (10.3)	49.7 (12.8)	<0.001
Social Functioning	41.7 (11.2)	51.1 (13.0)	<0.001
Role Emotional	37.5 (10.9)	49.2 (13.8)	<0.001
Mental Health	40.1 (11.8)	50.5 (14.2)	<0.001

These results demonstrate that depression significantly impacts all aspects of quality of life in RA patients. Further analysis showed that depression was more prevalent in female patients and those with a longer duration of RA, although these associations were not statistically significant. The logistic regression analysis identified higher DAS28 scores and lower SF-36 scores as significant predictors of depression in RA patients.

Table 4: Logistic Regression Analysis for Predictors of Depression

Variable	Odds Ratio	95% CI	p-value
Age	1.02	0.98 - 1.06	0.18
Gender (Female)	1.30	0.82 - 2.07	0.27
Duration of RA (years)	1.04	0.98 - 1.10	0.22
DAS28	1.53	1.26 - 1.87	<0.001
Quality of Life (SF-36)	0.93	0.89 - 0.97	<0.001

Overall, these findings highlight the critical need for routine mental health screening and integrated care approaches to manage both the physical and psychological aspects of rheumatoid arthritis effectively.

DISCUSSION

The current study reveals a significant prevalence of depression among rheumatoid arthritis (RA) patients, with nearly half of the cohort (48.5%) exhibiting depressive symptoms. These findings align with previous literature, emphasizing the critical intersection of psychological and physical health in RA management. Patients with depression exhibited markedly higher disease activity, as indicated by elevated Disease Activity Scores in 28 joints (DAS28), and poorer quality of life across all domains of the SF-36 Health Survey.

Comparing our findings with existing literature, we observed a consistent pattern where depression exacerbates RA symptoms. For instance, Matcham et al. highlighted a similar prevalence of depression in RA patients and its detrimental impact on disease management (7). Furthermore, Dickens et al. underscored that depressive symptoms in RA patients contribute to increased disease activity and reduced treatment adherence (8). Our study supports these conclusions, demonstrating that depression significantly correlates with higher DAS28 scores and lower quality of life metrics (9).

Notably, our results extend the understanding of this relationship in a Pakistani cohort, filling a regional gap in the literature. Previous studies, primarily conducted in Western populations, have reported analogous findings. Sheehy et al. and VanDyke et al. both documented the adverse effects of depression on RA outcomes, reinforcing the universal relevance of addressing psychological health in RA treatment (10, 11). This study underscores the necessity of incorporating mental health evaluations in RA management protocols to improve patient outcomes comprehensively.

The implications for clinical practice are profound. Routine mental health screening should be integrated into standard RA care to identify and address depression early. This approach could potentially mitigate the impact of depression on disease activity and enhance the overall quality of life for RA patients. Implementing comprehensive care strategies that include psychological support is crucial for improving both mental and physical health outcomes in RA patients (12).

Our study also identifies significant predictors of depression in RA patients, including higher DAS28 scores and lower SF-36 scores. These findings suggest that patients with more severe disease activity and poorer quality of life are at greater risk of developing depression. Clinicians should be particularly vigilant in monitoring these patients for depressive symptoms, enabling timely intervention and support (13).

Future research should explore targeted interventions to address depression in RA patients. Investigating the efficacy of integrated care models, where psychological and physical health services are combined, could provide valuable insights. Additionally, longitudinal studies examining the long-term effects of depression management on RA outcomes would be beneficial (14).

Limitations

Despite its contributions, this study has several limitations. The sample size, while adequate, is limited to a single tertiary care hospital in Pakistan, which may affect the generalizability of the findings. Additionally, the cross-sectional nature of the study precludes conclusions about causality. Future studies should include larger, more diverse populations and consider longitudinal designs to establish causal relationships between depression and RA outcomes (15).

CONCLUSION

In conclusion, this study highlights the significant prevalence of depression among RA patients and its adverse effects on disease activity and quality of life. The findings underscore the necessity of integrating mental health screening and support into RA management protocols to improve patient outcomes comprehensively.

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