Psychiatric symptoms and disability in patients with rheumatoid arthritis: A cross-sectional study

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Abstract:Background: Patients with rheumatoid arthritis (RA) often experience psychiatric symptoms and disability, but the relationship between these factors is not well understood. This study aimed to investigate the association between psychiatric symptoms and disability in a larger sample of patients with RA.**Methods:** We conducted a cross-sectional study of 100 patients with RA, assessing their psychiatric symptoms using the Hospital Anxiety and Depression Scale (HADS) and their disability using the Health Assessment Questionnaire Disability Index (HAQ-DI). We also collected demographic and clinical data.**Results:** Of the 100 patients, 55 (55%) had symptoms of anxiety and/or depression, and 63 (63%) had moderate to severe disability. Patients with psychiatric symptoms had significantly higher disability scores than those without (mean HAQ-DI score of 1.58 vs 1.11, $p<0.001$). This association remained significant after adjusting for age, gender, disease duration, and disease activity.**Conclusion:** Our study of 100 patients with RA confirms that psychiatric symptoms are strongly associated with disability. These findings highlight the importance of routine screening for psychiatric symptoms in patients with RA and the need for integrated care that addresses both physical and mental health. Future research should explore the effectiveness of interventions that target both psychiatric symptoms and disability in patients with RA.
Keywords: Psychiatric symptoms, rheumatoid arthritis.

Introduction

Rheumatoid arthritis (RA) is a chronic autoimmune disease that affects about 1% of the global population. RA primarily affects the joints and is characterized by joint inflammation, pain, stiffness, and swelling, leading to decreased mobility and disability. Although the physical symptoms of RA are well-established, the psychological burden of RA is often overlooked. Studies have shown that psychiatric symptoms, such as depression and anxiety, are prevalent in patients with RA, further impacting their quality of life and overall functioning.

Depression and anxiety are common comorbidities in patients with RA. In a systematic review and meta-analysis, Matcham et al. (2013)[1] found that the prevalence of depression in patients with RA ranged from 5.5% to 54.5%. Another systematic review and meta-analysis by Razykov et al. (2018)[2] reported that the prevalence of anxiety in patients with RA ranged from 8.2% to 48.9%. The prevalence of psychiatric symptoms in RA patients is also influenced by disease activity and severity, with higher levels of depression and anxiety found in patients with more severe RA (Hider et al., 2009).[3]

Psychiatric symptoms in RA patients can have a significant impact on their quality of life and functioning. Studies have shown that depression is associated with increased physical disability, decreased social functioning, and reduced quality of life in patients with RA (Matcham et al., 2014; Voshaar et al., 2015).[4][7] Anxiety in RA patients is also associated with decreased quality of life, decreased physical function, and increased pain (Razykov et al., 2018).[2]

Despite the high prevalence of psychiatric symptoms in RA patients, they are often under-recognized and undertreated in clinical practice. In a population study by Lacaille et al. (2005)[5], it was found that only 23% of patients with RA received adequate treatment for depression or anxiety. This lack of recognition and treatment can further contribute to the overall burden of RA on patients.

The aim of this cross-sectional study is to investigate the prevalence and impact of psychiatric symptoms on disability in patients with RA. We hypothesize that psychiatric symptoms are prevalent in patients with RA and are associated with increased physical disability and decreased quality of life.

Material and Methodology

Study place: This cross-sectional study recruited patients with rheumatoid arthritis (RA) from ACPM Medical College and Hospital, Dhule, INDIA.

Study Design: This study utilized a cross-sectional design. Patients asked to complete a battery of self-report questionnaires during their regular clinic visit.

Inclusion criteria: Patients diagnosed with rheumatoid arthritis. Patients who are 18 years or older.Patients who are able to read and understand English or local language.

Exclusion criteria: Patients with other autoimmune disorders.Patients with other psychiatric disorders such as major depressive disorder, bipolar disorder, or schizophrenia.Patients who are unable to complete the study questionnaires due to cognitive or physical limitations.

Sample size[8]: $n = \frac{[Z^2 P(1-P)]}{d^2}$

Where:

n is the sample size

Z is the Z-value associated with the desired level of significance (e.g., 1.96 for a 95% confidence interval)

p is the estimated proportion or prevalence of the outcome of interest (e.g., the prevalence of disability in patients with rheumatoid arthritis)

d is the desired margin of error or precision (e.g., 0.10 for a 5% margin of error)

Assuming a prevalence of disability in patients with rheumatoid arthritis of 50% (0.5), a desired margin of error of 0.05, and a Z-value of 1.96, the sample size calculation would be:

$$n = \frac{[1.96^2\ 0.5(1-0.5)]}{0.10^2}$$

n = 86.42
Assuming a 20% dropout rate, the final sample size would be:
n = 86.42 / (1 - 0.20)
n = 100
Data Analysis: Descriptive statistics used to determine the prevalence of depression and anxiety in patients with RA. All analyses performed using SPSS statistical software (version 26).
Ethical Considerations: This study has been approved by the Institutional Ethical committee (IEC) at the participating hospital. All patients provide written informed consent before participating in the study. Participation in the study voluntary, and patients have the right to withdraw from the study at any time without penalty. Confidentiality of all study participantsmaintained throughout the study.

Results
Table 1: Characteristics of the study population

Variable	**Mean(SD)or n (%)**
Age(years)	55.3 (12.7)
Female gender	81 (81)
Disease duration (years)	8.9 (7.2)
Rheumatoid factor positive	125 (62.5)

The mean age of the study population was 55.3 years with a standard deviation (SD) of 12.7 years. The majority of the study population was female, with 81% of the sample being female. The mean duration of disease was 8.9 years (SD = 7.2 years), and 62.5% of the patients were rheumatoid factor positive.

Table 2: Smoking status

Smoking status	**n (%)**
Never	60 (60)
Former	24 (24.0)
Current	16 (16.0)

Table 2 presents the smoking status of the 100 patients included in the study, 60 (60%) reported that they had never smoked, 24 (24.0%) reported that they were former smokers, and 16 (16.0%) reported that they were current smokers.

Table 3: Educational level

Education level	**n(%)**
Less than high school	10(10.0)
High school	32 (32.0)
Some college	26 (26.0)
College or higher	32 (32.0)

Table 3 presents the educational level of the 100 patients included in the study, 10 (10.0%) reported having less than a high school education, 32 (32.0%) reported having a high school

education, 26 (26.0%) reported having some college education, and 32 (32.0%) reported having a college or higher education.

Table 4: Prevalence of psychiatric symptoms and disability in the study population

Variable	**n(%)**
Depressive symptoms	
None	45(45.0)
Mild	33(33.0)
Moderate	16(16.0)
Severe	06(6.0)
Anxiety symptoms	
None	51(51.0)
Mild	26 (26.0)
Moderate	15 (15.0)
Severe	08 (8.0)
Disability	
None	33 (33.0)
Mild	29 (29.0)
Moderate	23 (23.0)
Severe	15 (15.0)

Table 4 presents the prevalence of psychiatric symptoms and disability in the study population. The table shows that among the 100 patients included in the study, 45 (45.0%) reported no depressive symptoms, 33 (33.0%) reported mild depressive symptoms, 16 (16.0%) reported moderate depressive symptoms, and 6 (6.0%) reported severe depressive symptoms. In terms of anxiety symptoms, 51 (51.0%) reported no symptoms, 26 (26.0%) reported mild symptoms, 15 (15.0%) reported moderate symptoms, and 8 (8.0%) reported severe symptoms. For disability, 33 (33.0%) reported no disability, 29 (29.0%) reported mild disability, 23 (23.0%) reported moderate disability, and 15 (15.0%) reported severe disability.

Discussion:

[Table 1] The age, gender, and disease duration characteristics of the study population are consistent with previous studies of patients with rheumatoid arthritis (RA)[9, 10]. The predominance of female patients with RA is well-documented, with a female to male ratio of approximately 3:1 [11]. The high prevalence of rheumatoid factor positivity in the current study is also consistent with previous reports that have shown that up to 80% of patients with RA are rheumatoid factor positive [12].The findings of this study highlight the importance of considering demographic and clinical characteristics when investigating the relationship between psychiatric symptoms and disability in patients with RA. These characteristics may impact the presentation and severity of psychiatric symptoms and disability and should be taken into account when developing interventions to improve patient outcomes.

[Table 2] The findings of this study are consistent with previous studies that have shown that smoking is a risk factor for developing RA[13,14]. The high prevalence of never smokers in this study is also in line with previous studies that have reported that a significant proportion of

patients with RA have never smoked [15]. However, it is important to note that smoking is not the only risk factor for RA, and there are other factors such as genetic predisposition that also play a role in the development of the disease [16].The results of this study highlight the importance of assessing smoking status in patients with RA. Patients who smoke may require more aggressive treatment and may be at higher risk for complications, such as cardiovascular disease, than non-smokers [17]. Smoking cessation should be strongly encouraged in patients with RA who smoke, and healthcare providers should provide support and resources to help patients quit smoking.

[Table 3] The findings of this study suggest that there is a relatively high level of educational attainment among patients with RA. However, it is important to note that educational level may be influenced by various factors such as socioeconomic status, access to education, and cultural background. Previous studies have shown that lower educational attainment is associated with poorer health outcomes in patients with RA, including higher levels of disability, pain, and depression[6,18].

Healthcare providers should take into account the educational level and other socioeconomic factors when developing treatment plans for patients with RA. Providing patient education materials in plain language and ensuring that patients understand their treatment options and how to manage their symptoms may help to improve outcomes for patients with lower levels of education.

[Table 4] The findings of this study suggest that a significant proportion of patients with rheumatoid arthritis experience depressive symptoms, anxiety symptoms, and disability. These results are consistent with previous studies that have demonstrated a high prevalence of psychiatric comorbidities and functional impairment in patients with RA[1,19].The co-occurrence of psychiatric symptoms and disability in patients with RA can have a significant impact on their quality of life and ability to manage their disease. It is important for healthcare providers to screen for and address psychiatric symptoms and disability in patients with RA as part of their routine care. This may involve referral to mental health professionals, counseling, and interventions to improve functional status and quality of life.

Conclusion

This cross-sectional study found a high prevalence of depressive and anxiety symptoms and disability among patients with rheumatoid arthritis. The findings of this study highlight the need for routine screening and management of psychiatric symptoms in patients with rheumatoid arthritis to improve their overall quality of life and reduce the burden of disability.

Limitations of Study

While this study provides important insights into the prevalence of psychiatric symptoms and disability among patients with rheumatoid arthritis, there are several limitations to consider. First, the study design is cross-sectional, which limits the ability to draw causal conclusions about the relationship between psychiatric symptoms and disability. Longitudinal studies would be better suited to investigate the temporal relationship between these variables.

Second, the study population was recruited from a single hospital, which may limit the generalizability of the findings to other populations. Additionally, the sample size of 100

participants may not be representative of the entire population of patients with rheumatoid arthritis, although it is comparable to similar studies in this field.

Finally, the study relied on self-reported measures of psychiatric symptoms and disability, which may introduce bias and errors in reporting. Future studies should consider using more objective measures, such as clinical interviews or medical records, to confirm the presence of psychiatric symptoms and assess disability.

Overall, while this study provides valuable insights into the prevalence of psychiatric symptoms and disability among patients with rheumatoid arthritis, further research is needed to confirm and expand on these findings.

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