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ASSOCIATION BETWEEN THE FUNCTIONAL LIMITATION AND PAIN INTENSITY IN PATIENTS WITH RHEUMATOID ARTHRITIS IN LAHORE

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Abstract

Background: *Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by progressive damage to joint bones and cartilage, accompanied by persistent inflammation. RA significantly impacts patients' quality of life by causing pain and functional limitations.*

Objective: *The study aimed to investigate the association between functional limitations and pain intensity in patients with RA.*

Methods: *A cross-sectional observational study was conducted over six months with 100 RA patients aged 35–50 years, selected through non-probability convenient sampling. Both male and female participants diagnosed with RA were included. Data were collected using the Health Assessment Questionnaire (HAQ) for functional disability and the Visual Analogue Scale (VAS) for pain intensity. Data analysis was performed using SPSS version 21, applying chi-square tests for statistical significance.*

Results: *Pain intensity among the participants was distributed as follows: 19.8% reported mild pain, 61.4% moderate pain, and 17.8% severe pain. Regarding functional limitations, 18.8% reported no difficulty, 3.0% experienced some difficulty, 37.6% reported much difficulty, and 39.0% were unable to perform activities such as walking, reaching, gripping, hygiene, dressing, and grooming.*

Conclusion: *The study highlights a significant association between functional limitations and pain intensity in RA patients. Functional impairment is common, with a considerable proportion of patients reporting moderate to severe pain and difficulty performing daily activities*

INTRODUCTION

Rheumatoid arthritis (RA) is a Multi systemic, inflammatory, chronic, autoimmune, and progressive condition with an unknown etiology. It is marked by joint stiffness, swelling, and deterioration of the synovial joint. (1). The prevalence is between 0.5% and 1%. With a peak incidence at age 55, women are the ones who come with the condition most frequently. A common outcome is a disability that makes it difficult to manage everyday tasks, employment, and leisure activities (2).

The World Health Organization (WHO) defines RA as a chronic, systemic illness that affects the muscles, tendons, fibrous tissue, connective tissues, and joints. It is a chronic, disabling disorder that frequently results in discomfort

and deformity. It usually strikes between the ages of 20 and 40, when adult productivity is at its peak. A 3:1 ratio indicates that women are impacted more than Males (Al-jabi; Seleit, Badran, Koni, & Zyoud, 2021) As the illness progresses, patients have increased pain, swelling, stiffness in the morning, deformity, weakness, depression, weight loss, fever, disability, and a lower quality of life. It can injure the body and lessen a patient's capacity for employment.(3)

The symptom Joint pain, stiffness, edema, restricted range of motion in the joints, and overall exhaustion are all signs of RA. Limitations in everyday activities, such taking care of oneself or taking care of the home, and involvement in society, such as paid and unpaid labor, as well as leisure activities, may result from these symptoms. (4).

Although each patient had experience RA differently, the disease typically affects symmetrical small joints first, like the metacarpophalangeal and proximal interchangeable joints, before moving on to bigger joints. Sixty percent of RA risk factors are hereditary, and forty percent are environmental. Infectious agents, female sex, smoking, obesity, silica exposure, vitamin D deficiency, and micro biome alterations are examples of environmental factors. Morning stiffness in the afflicted joints is one of the hallmark signs of RA. (5)

Weakness, poor appetite, weight loss, discomfort, fatigue, mood disorders, difficulty sleeping, and insomnia are common symptoms among elderly individuals with RA. (6) Patients with RA have worse quality of life. Clinical characteristics connected to RA, including disease activity, length of illness, and poor functional status, have been associated with a lower quality of life. (7)

One of the most common complaints in rheumatoid arthritis (RA) is pain and incapacity. Although nociceptive pain is typically thought to be caused by inflammation and joint degradation, the severity of the pain does not always correspond with structural damage and the disease activity score (DAS). With the advent of biological Disease-Modifying Anti-Rheumatic Drugs (DMARDs), which are commonly linked to synthetic DMARDS (sDMARDs) like methotrexate, there have been significant advancements in the treatment of RA in recent years. Severe inflammatory and destructive illness is less common in patients. However, people continue to prioritize pain management across a variety of health indicators. (8) Physiotherapy and hydrotherapy techniques hav e been studied in a variety of ways.Transcutaneo us stimulation of the cervical vagal nerve, under water ultrasound (US) therapy, neuromuscular electrical stimulation, laser acupuncture, and tra ns electrical nerve stimulation (TENS) have all s hown some promising results.Many RA patient groups have participated in hydrotherapy studie s; local and wholebody cry stimulation can be c ombined with physical activity to effectively reli eve pain and disease activity, and both have had positive benefits .(9)

The association between functional limitations and pain intensity in patients with rheumatoid arthritis (RA) in Lahore had not been fully understood, despite the widespread impact of the condition. There was a need for research to explore pain intensity's influence on functional impairments in RA patients, particularly in this population. Investigating this relationship was crucial for developing targeted pain management strategies that could improve daily functioning and quality of life. This research benefited the community by guiding more personalized, effective treatment plans, reducing disability, and enhancing the overall well-being of RA patients in Lahore.

MATERIAL AND METHODS

This study employs a Cross-Sectional observational. After the approval of the synopsis data was collected from Sheikh Zaid Hospital Lahore, Jinnah hospital Lahore and General hospital Lahore. The study was completed within 6 months after the approval of the synopsis. The Sample size was 100 and non-probability convenience sampling technique utilized. Individuals aged 35 to 50 who have been diagnosed with rheumatoid arthritis, every

rheumatoid arthritis patient attending the outpatient clinic for rheumatology was considered a case, both male and female (17), subjects prepared to provide informed consent in writing (18) are eligible for inclusion criteria. Other mental or physiological conditions that hinder respondents' ability to cooperate or take part in the study. (18) Patients who suffer from chronic systemic disease or other autoimmune diseases that may impact their quality of life, any history of oral or intra-articular steroid administration within the last six months, any consumption of mineral supplements that are homeopathic, ayurvedic, or herbal (17) were excluded from study. Outcome measurement tools are health assessment questionnaire disability index and visual analogue scale was used. Data was collected and analyzed on SPSS version 21.0 then analyzed for statistically significant outcomes by using chi square test. Quantitative data was added to the statistical package for the social science (SSPSS) sheet (version 21). The mean and standard deviation for quantitative variables was calculated, and visualizations like histograms, box plots, or bar charts to illustrate the effect of physiotherapy to improve pain and functional limitation in RA patients. Qualitative variables were calculated in frequency, percentages, and bar charts. Conduct correlation analysis to explore relationships between these factors, using correlation coefficients and visual aids like scatter plots or correlation matrices. In contrast, a P value less than 0.05 will be considered significant. Baseline statistics was analyzed for both groups as Mean ± S.D.

RESULTS

TABLE 1: Descriptive Statistic of the age of patients with RA

	N	Minimum	Maximum	Mean	Std. Deviation
Age	100	35.0	50.0	43.590	7.7565

The descriptive statistics for age in the sample are as follows: The ages of the 100 participants range from a minimum of 35 years to a maximum of 50 years. The mean age is 43.59 years, with a standard deviation of 7.76 years.

Table no 2. Frequency /Percentage of the gender of patients with RA

	Frequency	Percent
Male	23	22.8
Female	77	76.2
Total	100	99

The datasets comprises100 patients with rheumatoid arthritis (RA), of which 23 are male, accounting for 22.8% of the total, and 77 are female, making up 76.2% of the group.

Table 3; Frequency /Percentage of Patient "How would you rate your Pain? 'With RA

	Frequency	Percent
1-3Mild	20	19.8
4-6Moderate	62	61.4
7-9Severe pain	18	17.8
Total	100	99.0

In the data set, the distribution of pain severity among patients with rheumatoid arthritis (RA) is as follows: 20 patients (19.8%) report mild pain, 62 patients (61.4%) experience moderate pain, and 18 patients (17.8%) suffer from severe pain.

Table 4: Frequency /percentage of patients HAQDI SCORE

	Frequency	percent
No difficulty	19	18.8
With much difficulty	38	37.6
Unable to do	40	39.
Total	100	99.0

In the HAQDI (Health Assessment Questionnaire Disability Index) score survey, 18.8% of patients reported no difficulty, while 3.0% experienced some difficulty. A significant portion, 37.6%, reported much difficulty, and 39.0% were unable to perform the assessed activities at all. Overall, 99.0% of respondents indicated some level of difficulty.

Table05: Cross tabulation of HAQDI and VAS

Chi-Square Test							
		Total HAQDI_ score					
		No Difficulty	Some Difficulty	Much Difficulty	Unable to perform task	Total	P-Value
VAS	Mild	18	1	1	0	20	0.004
	Moderate	1	2	36	23	62	
	Severe	0	0	1	17	18	
Total		19	3	38	40	100	

The p-value of 0.004 indicates a statistically significant association between pain levels and reported difficulties, suggesting that higher pain intensity is strongly correlated with greater functional impairment. This finding underscores the critical impact of pain severity on patients' ability to perfor
m daily tasks and manage functional limitations.

DISCUSSION

Rheumatoid arthritis (RA) is a chronic inflammatory disease mostly affecting the joints, resulting in function loss, stiffness, and discomfort. The relationship between functional limitation and pain intensity is complex and multifaceted. This study aimed to investigate the association between functional limitations and pain intensity in patients with RA.

The majority of women affected by RA are shown in this study. The dataset includes 100 RA patients, 23 of whom are male (representing 22.8% of the total) and 77 of whom are female (representing 76.2% of the group). The data from 215 RA participants—mostly women (n = 194; 90%) with a mean age of 58.8 (SD ± 12.8) years and a mean disease duration of 18.8 (±13.0) years—were used in this study, which was an extension of Tuewen et al.'s earlier research.

According to [Tuewen et al.], the research is consistent with earlier studies. Additionally, it demonstrates that the majority of severe limits were noted in the areas of reaching, gripping, using one's usual activities, and personal cleanliness, with at least 50% of the study participants exhibiting severe disabilities. Of the patients in this study, 99 percent had significant difficulties performing the exercise. The majority of the population, according to this research, has difficulty reaching, gripping, and other activities. The number of participants who experienced difficulties carrying out everyday activities in the areas of personal hygiene, reaching, and usual activities. "Taking a tub bath," "Doing chores like vacuuming or yard work," and "Reaching and getting down a 5-pound object from above your head" were the three main points within each

respective domain. It should be mentioned that the majority of participants reported at least some difficulty with each of the other individual things, even though these particular issues could need extra attention. Here, "Lifting a full cup or glass to your mouth" was the lone exemption This broad range of issues emphasizes the complete inability that this subgroup experiences, affecting both the lower and upper extremity joints.

Almost two thirds of participants had trouble with a lower limb exercise that seemed simple, such "Walking outdoors on flat ground." On the other hand, more than 90% had difficulty with upper extremity tasks like reaching and opening milk cartons. These results clearly suggest that most patients have reduced functioning in both upper and lower extremities.

The four primary pillars on which quality of life is assessed are physical, mental, social, and environmental fitness, which encompasses mobility, financial resources, access to healthcare, and the home environment. Additionally, questions about opinions on health and life quality are asked. Our study aims to investigate a range of factors, including patient sex, cognitive impairment, frailty syndrome, multimorbidity, and the number of drugs taken, and evaluate their relationships with quality of life in older patients with RA in the setting of malnutrition. (20)

Continual assessments of a patient's functional state, degree of discomfort, and range of motion in the joints aid in customizing the physiotherapy regimen to meet their evolving requirements. Outcome Measures Standardized outcome measures, like the Visual Analog Scale (VAS) for pain or the Health Assessment Questionnaire (HAQ), are useful for monitoring progress and making necessary adjustments to interventions.

This research suggests the following: Regular Monitoring: Set up regular follow-up meetings to evaluate problems, monitor progress, and adjust the treatment plan as necessary. Self-Management Techniques Provide training in self-management strategies, including pacing activities, recognizing early signs of flare-ups, and effective use of assistive devices. Motivational Support Use motivational interviewing techniques and goal-setting strategies to encourage patient.

Improving function and lowering disease activity could be additional advantages of physical therapy and rehabilitation. Although physical therapy and exercise have been shown to be beneficial in treating various types of chronic inflammatory arthritis, including axial spondyl arthritis and rheumatoid arthritis, there is currently a lack of data regarding these interventions' effects on individuals with. However, other studies suggest that physical therapy may benefit various disease domains, such as improving quality of life, preventing, or enhancing articular damage, increasing disease activity, and improving pain management.(21)

In this study, rheumatoid arthritis (RA) patients' functional limits and pain levels are examined. RA is a chronic inflammatory disease that impairs a patient's quality of life by causing severe pain and mobility problems. In addition to examining demographic, clinical, and psychosocial factors that may affect this association, the study attempts to quantify the relationship between the degree of functional impairment in everyday tasks and the severity of pain. he studies aims to improve treatment methods, guide clinical procedures, and provide a more comprehensive, patient-centered approach to RA management by comprehending how pain intensity affects functional capacity. The findings ultimately seek to enhance the quality of life for those who suffer from this illness, highlighting the necessity of combined pain treatment and rehabilitation initiatives.

CONCLUSION

The research concluded that there was a significant association between pain intensity and functional limitations in patients with rheumatoid arthritis (RA) in Lahore. Effective pain management strategies improved daily functioning and quality of life for these patients. Ultimately, the study highlighted the importance

of personalized treatment plans to enhance the well-being of individuals living with RA.

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