

FACTORS AFFECTING THE LEVELS OF PHYSICAL ACTIVITY IN
PATIENTS WITH RHEUMATOID ARTHRITISAmna Mushtaq^{*1}, Dr Nazia Ilyas²^{*1}Post RN BSN, Post Graduate College of Nursing, Lahore, Pakistan²Nursing Instructor, Post Graduate College of Nursing, Lahore, Pakistan^{*1}amnamushtaq948@gmail.comDOI: <https://doi.org/10.5281/zenodo.18058643>**Keywords**

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Abstract

Background: Rheumatoid arthritis (RA) is a chronic inflammatory disease associated with pain, functional limitations, and increased comorbidities. Regular physical activity is a key non-pharmacological strategy for managing RA; however, many patients remain physically inactive. Understanding barriers and factors influencing physical activity is essential for designing effective interventions.

Materials and Methods: A descriptive cross-sectional study was conducted among 240 patients with RA attending the outpatient department of Services Hospital, Lahore. Physical activity levels were assessed using the short form of the International Physical Activity Questionnaire (IPAQ), and perceived barriers were measured using the 18-item Barriers to Health Activities Scale (BHAS). Logistic regression analysis was performed to identify factors associated with physical activity engagement.

Results: Participants had a mean age of 44.61 ± 6.76 years, and most were female (60.4%). High-ranking barriers included lack of interest, insufficient social support, lack of information, financial constraints, and embarrassment about appearance. Logistic regression showed that lack of convenient facilities, absence of assistance, lack of information, and difficulty with communication were significant predictors of reduced physical activity, while fatigue and transportation were not significant.

Conclusion: Physical activity among patients with RA is strongly influenced by social, informational, environmental, and psychological barriers rather than physical limitations alone. Interventions focusing on education, social support, and improved access to facilities are crucial to promote active lifestyles in this population.

INTRODUCTION

Rheumatoid arthritis (RA) is the most common autoimmune systemic inflammatory joint disease, affecting individuals across all age groups, with peak onset between 30 and 60 years. Its prevalence increases with age, and disease onset after 60 years is often associated with poorer inflammatory control, greater comorbidity burden, and worse health outcomes (Radu and

Bungau, 2021; Serhal et al., 2020). Globally, more than 17 million people were living with RA in 2020, with women affected two to three times more frequently than men, and RA contributing to a 1.5–1.6-fold increase in mortality compared to the general population (Black et al., 2023; Sokka et al., 2008). Pathophysiologically, RA is characterized by chronic synovial inflammation

driven by dysregulated immune activation, particularly T lymphocytes and synovial fibroblasts, leading to excessive production of pro-inflammatory cytokines such as TNF- α , IL-6, and IL-1 β , resulting in progressive joint destruction, pain, and functional impairment (Edilova et al., 2021).

Beyond joint damage, RA is associated with a wide range of comorbid conditions, including cardiovascular disease, respiratory disorders, diabetes, depression, fatigue, sleep disturbances, and reduced quality of life (Figus et al., 2021; Tański et al., 2022). Cardiovascular disease remains one of the most serious complications, with patients with RA experiencing a two- to three-fold higher risk compared to the general population, accounting for up to half of RA-related deaths (Suh et al., 2019; Zegkos et al., 2016). These health consequences contribute significantly to disability, reduced work productivity, and substantial economic burden, with projected costs of absenteeism and presenteeism for RA and osteoarthritis in the United Kingdom alone estimated at £3.43 billion by 2030 (Brown et al., 2023). Chronic inflammation, physical inactivity, medication side effects, and psychological distress further exacerbate disease progression and comorbidity risk.

Management of RA includes both pharmacological and non-pharmacological approaches, with physical activity (PA) recognized as a key component of comprehensive disease management (Fraenkel et al., 2021). Regular PA has been shown to reduce disease activity, improve physical function, enhance quality of life, and shift inflammatory profiles toward anti-inflammatory pathways (Cook et al., 2018; Becic et al., 2018). International guidelines from organizations such as the American College of Rheumatology, EULAR, and NICE strongly recommend regular moderate-to-vigorous physical activity for individuals with RA (Kolasinski et al., 2020; Burtscher et al., 2023). Despite these benefits, physical activity levels among patients with RA remain low, with up to 71% classified as physically inactive and prolonged sedentary behavior commonly reported (Tierney et al.,

2012; Bearne, 2023). Barriers include pain, fatigue, disease activity, psychological factors, low motivation, limited self-efficacy, and lack of social or professional support, particularly among Asian populations who report lower activity levels and more negative attitudes toward PA (Withall et al., 2016; Iversen et al., 2017; Katz et al., 2020; Im et al., 2012). Given the limited evidence from Pakistan and the influence of cultural and disease-specific factors, this study aims to evaluate physical activity levels and identify factors affecting physically active lifestyles among patients with RA to inform future targeted intervention programmes.

1. Materials and Methods

This study employed a descriptive cross-sectional design to evaluate physical activity levels and perceived barriers to physical activity among patients diagnosed with rheumatoid arthritis. The study population comprised adult patients with a confirmed diagnosis of rheumatoid arthritis who attended the outpatient department of Services Hospital, Lahore, a major tertiary care hospital in Pakistan. Data collection was carried out over a period of three months.

A total sample of 240 patients was recruited using a non-probability convenience sampling technique. Patients aged 20 to 70 years, of both genders, and clinically diagnosed with rheumatoid arthritis were included in the study. Patients younger than 20 years or older than 70 years, those with other significant medical illnesses, and individuals who declined to participate were excluded.

Physical activity was assessed using the short form of the International Physical Activity Questionnaire (IPAQ). Participants were asked to recall the frequency and duration of vigorous, moderate, and walking activities performed for at least 10 minutes during the preceding seven days. To enhance accuracy, examples of activity intensity levels were provided. Physical activity levels were calculated in metabolic equivalent task minutes per week (MET-min/week) by multiplying the duration of each activity by its assigned metabolic value. One MET represents the energy expenditure at rest. In line with

established recommendations, participants achieving ≥ 600 MET-min/week, equivalent to at least 150 minutes of moderate-intensity activity per week, and engaging in moderate activity or walking at least three times per week were classified as physically active.

Perceived barriers to physical activity were measured using the 18-item Barriers to Health Activities Scale (BHAS). This instrument assesses the frequency with which individuals experience

common barriers to physical activity using a 4-point Likert scale ranging from never (1) to routinely (4). Total scores were obtained by summing individual items, with higher scores indicating greater perceived barriers to physical activity. The BHAS has demonstrated good internal consistency, with a reported Cronbach's alpha of 0.86 in previous research (Suh et al., 2019).

2. Results

Table 1: Characteristics of the Participants (n = 240)

Variable	Category	Frequency (f)	Percentage (%)
Age (years)	Mean $\pm$ SD	44.61 $\pm$ 6.76	—
Gender	Male	95	39.6
	Female	145	60.4
Education	Middle	137	57.1
	High school	63	26.3
	Graduate	29	12.1
	Postgraduate	11	4.6
Marital status	Single	66	27.5
	Married	166	69.2
	Widow	8	3.3
Employment status	Employed	126	52.5
	Unemployed	114	47.5
Disease duration	< 1 year	79	32.9
	2–4 years	110	45.8
	5–7 years	33	13.8
	≥ 8 years	18	7.5
Morning stiffness	Yes	128	53.3
	No	112	46.7
History of hypertension	Yes	78	32.5
	No	162	67.5
History of diabetes mellitus	Yes	81	33.8
	No	159	66.3
History of cardiovascular disease	Yes	80	33.3
	No	160	66.7
Smoking status	Smoker	70	29.2
	Non-smoker	170	70.8

Table 1 summarizes the demographic and clinical characteristics of the study participants. The mean age of the participants was 44.61 ± 6.76 years, with a higher proportion of females (60.4%). Most participants had middle-level education (57.1%), were married (69.2%), and employed (52.5%). Nearly half of the patients reported a disease duration of 2–4 years (45.8%), while 53.3% experienced morning stiffness. Common comorbidities included hypertension (32.5%), diabetes mellitus (33.8%), and cardiovascular disease (33.3%). The majority of participants were non-smokers (70.8%).

Table 2: Perceived Barriers to Physical Activity among Patients with Rheumatoid Arthritis (n = 240)

Barrier	Mean	Standard Deviation
Lack of convenient facilities	2.49	0.887
Feeling too tired	2.43	0.926
Lack of transportation	2.94	0.834
Perception that activity does not help	2.98	0.921
Lack of money	3.13	0.816
Physical impairment	2.97	0.884
No one to help or assist	3.25	0.840
Lack of interest	3.42	0.798
Lack of information	3.18	0.916
Embarrassment about appearance	3.17	1.005
Concern about personal safety	3.16	0.934
Lack of support from family or friends	2.98	0.979

Table 2 presents the mean scores and standard deviations of perceived barriers to physical activity among patients with rheumatoid arthritis. The highest-rated barriers were lack of interest (3.42 ± 0.79), absence of assistance (3.25 ± 0.84), and lack of information (3.18 ± 0.92), indicating substantial motivational and informational challenges. Financial constraints, safety concerns, and embarrassment about appearance were also prominent barriers. Physical limitations, transportation issues, and fatigue showed moderately high scores, reflecting disease-related and environmental constraints that hinder regular physical activity participation.

Table 3: Factors Affecting Physical Activity among Patients with Rheumatoid Arthritis (Logistic Regression Analysis)

Barrier	B	SE	p-value	Odds Ratio (95% CI)
Lack of convenient facilities	-0.496	0.231	0.031*	0.61 (0.39-0.96)
Feeling too tired	0.295	0.249	0.236	1.34 (0.83-2.19)
Lack of transportation	-0.075	0.223	0.735	0.93 (0.60-1.44)
Perception that activity does not help	0.264	0.210	0.208	1.30 (0.86-1.96)
Lack of money	-0.459	0.294	0.119	0.63 (0.36-1.13)
Physical impairment	0.424	0.229	0.064	1.53 (0.98-2.39)
No one to help	0.404	0.201	0.045*	1.50 (1.01-2.22)
Lack of interest	-0.290	0.235	0.217	0.75 (0.47-1.19)
Lack of information	0.569	0.185	0.002**	1.77 (1.23-2.54)
Embarrassment about appearance	-0.407	0.184	0.027*	0.67 (0.46-0.95)
Concern about safety	0.219	0.192	0.255	1.25 (0.85-1.81)
Lack of support from family/friends	0.328	0.170	0.054	1.39 (0.99-1.94)
Interference with responsibilities	-0.244	0.206	0.236	0.78 (0.52-1.17)
Lack of time	-0.016	0.223	0.942	0.98 (0.64-1.52)
Feeling unable to perform activities correctly	-0.099	0.207	0.633	0.91 (0.60-1.36)
Difficulty with communication	0.402	0.185	0.030*	1.50 (1.04-2.15)
Bad weather	-0.053	0.187	0.777	0.95 (0.66-1.37)
Lack of help from healthcare professionals	-0.045	0.168	0.790	0.96 (0.69-1.33)

Logistic regression analysis identified several significant factors influencing physical activity among patients with rheumatoid arthritis. Lack

of information, absence of assistance, and difficulty with communication were positively associated with reduced physical activity,

indicating the importance of education, social support, and effective communication. Conversely, lack of convenient facilities and embarrassment about appearance were negatively associated with physical activity participation. Other barriers such as fatigue, transportation issues, financial constraints, and safety concerns were not statistically significant. These findings highlight that informational, social, and psychosocial factors play a more prominent role than purely physical limitations in determining physical activity behavior among patients with rheumatoid arthritis.

3. Discussion

The present study explored barriers to physical activity and factors influencing physical activity engagement among patients with rheumatoid arthritis (RA). The demographic profile reflected a predominantly middle-aged population (mean age 44.61 years) with a higher proportion of females (60.4%), consistent with the known epidemiology of RA. Most participants had middle-level education, were married, and nearly half were employed, indicating that RA affects individuals during their economically productive years. A substantial proportion reported morning stiffness and multiple comorbidities, including hypertension, diabetes mellitus, and cardiovascular disease, which are known to exacerbate functional limitations and restrict physical activity. The presence of smoking among nearly one-third of participants further compounds disease severity and limits physical activity engagement. These findings are comparable to those reported in a South Korean study, which also demonstrated a predominantly female, middle-aged, and married RA population (Suh et al., 2019).

Analysis of perceived barriers highlighted social, informational, and psychological factors as the most influential impediments to physical activity. High mean scores were observed for lack of interest, lack of support from others, time constraints, insufficient information, financial limitations, and embarrassment about appearance, indicating that motivation, social context, and self-perception strongly shape

activity behavior. In contrast, fatigue and transportation issues were rated as less prominent barriers. The variability in responses suggests that barriers differ across individuals and underscores the need for tailored, patient-centered interventions. These findings are consistent with earlier work by McAuley and colleagues, who emphasized the role of social support, competing responsibilities, and economic and psychological constraints in limiting physical activity participation (McAuley and Rudolph, 1995; McAuley et al., 2011). However, contrasting evidence from He et al. (2022) and Zhang et al. (2024) suggests that intrinsic motivation and environmental safety may outweigh social support, highlighting contextual differences in physical activity determinants.

Logistic regression analysis further identified key factors associated with physical activity engagement. Lack of convenient facilities and embarrassment about appearance significantly reduced the likelihood of participation, emphasizing the importance of accessible and psychologically supportive environments. Conversely, lack of information and absence of assistance from others were significant predictors of inactivity, reinforcing the central role of education and social support. Barriers such as fatigue and transportation were not statistically significant, while impairment and family support approached significance, warranting further investigation. These findings align with recent evidence demonstrating that limited access to facilities, poor social support, and inadequate knowledge hinder physical activity among individuals with chronic conditions (Moore et al., 2023). In contrast, Roberts et al. (2024) reported that self-efficacy and personal motivation were stronger predictors than environmental or social factors, underscoring the need for multidimensional interventions that simultaneously enhance individual motivation, improve access to facilities, and strengthen social and informational support systems to promote sustained physical activity among patients with RA.

4. Conclusion

This study identified a range of barriers to physical activity among patients with rheumatoid arthritis, with psychosocial and motivational factors emerging as significant challenges. Marital status, perceived health, and physical function were found to influence the likelihood of encountering barriers, highlighting the need for tailored interventions that address both physical and psychological limitations. The results underscore the importance of healthcare professional support, social encouragement, and the availability of safe and accessible exercise opportunities in promoting physical activity among RA patients. By addressing the barriers identified in this study, healthcare providers and policymakers can help RA patients engage in regular physical activity, which is critical for improving disease outcomes and overall quality of life. Future research should continue to explore these barriers and evaluate the effectiveness of interventions designed to overcome them.

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