

Original article:

Patients' Knowledge on Rheumatoid Arthritis presenting with Arthralgia in a Tertiary Care Teaching Hospital, Pakistan

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Abstract:

Objectives: The main aim of this study was to determine the level of knowledge about rheumatoid arthritis disease among patients presenting with arthralgia in a tertiary care teaching hospital, Pakistan.

Materials and Methods: A cross-sectional study during the period of September 2015 - March 2016 in the Medical Out-Patient Department, Shaheed Mohtarma Benazir Bhutto Medical University Hospital, a tertiary care teaching hospital in Larkana, Pakistan. Patients above 40 years of age of either gender were included in the study. A non-probability purposive sampling technique was employed to include the participants in the study. A pre-designed questionnaire with open and close ended questions was used. The questionnaire in English language was also translated in local language to facilitate the participants. All the statistical analysis was conducted using Stata statistical software 14. **Results:** A total number of 251 participants completed the questionnaires. 42 (56.6%) were from rural settings, while 233 (92.8%) were females. The overall mean age was 59 ± 8.69 years. There were 139 (55.4%) of the participants were ≥ 60 years of age. The average BMI was 23.1 ± 4.3. Moreover, 144 (57.4%) participants were found non-educated. The duration of the disease was less than 10 years in 154 (61.4%) of the participants. While, 157 (62.5%) participants were not knowing about factors which contribute to the onset of rheumatoid arthritis. We observed that, on the basis of responses to the relevant questions, only 4 (1.6%) participants were considered fully aware. **Conclusion:** We observed lack of knowledge in majority of the participants presenting with arthralgia. The public awareness and education through different vertical programs as well as through social media in the country which can play very important role.

Keywords: Arthralgia; Rheumatoid Arthritis; Cross-sectional; Knowledge; Pakistan.

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Introduction:

Rheumatoid arthritis is a chronic persistent synovitis, immunological disease characterized by symmetrical inflammation of the joints and autoantibodies (particularly to rheumatoid factor), leading to pain, swelling and stiffness of the joints, which ultimately

results in joint destruction, disability and poor quality of life.¹ The small joints in the hands and feet are most commonly affected, however any joint lined by synovial membrane can be affected. Further extra-articular involvement includes cardiac, respiratory, neurological, hematological and skin manifestations.

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It is hypothesized that genetic and environmental factors play their role in the manifestation of rheumatoid arthritis, and the mechanisms of pathogenesis are established.² Heritability is the proportion of phenotypic variance that can be attributed to genetic, rather than environmental, causes. Hence the rheumatoid arthritis has a considerable genetic component. However many environmental factors remain largely unknown other than cigarette smoke, and their contribution to rheumatoid arthritis aetiology is likely substantial.³ On the other hand the mechanism that underlie the observed sex-bias in the incidence is still unknown. However, sex hormones which may be play a role have been suggested by the Investigators.^{4,5}

Globally the prevalence of rheumatoid arthritis ranging from 0.1 - 1.0% and varies according to geographical location even within the same country.⁶⁻⁹ The prevalence of rheumatoid arthritis reported in studies from south of Pakistan was 0.14%, whereas it was reported 0.55% in the northern part of the country.^{10,11}

According to European League Against Rheumatism (EULAR) recommendations, the treatment of rheumatoid arthritis must be based on a shared decision between rheumatologist.¹² Which means that the patient should be informed and to participate in the decision as to which treatment should be applied.¹³ The sources of knowledge and information described in previous studies are different.^{13,14} The most preferred sources of information are health professionals, the physician and rheumatology nurse but people have also used other sources, such as newspaper, television, radio, and Internet. However, in the Netherlands it is reported that media play a little attention to provide information on rheumatic disease.¹⁴

We hypothesized that knowledge in patients with arthralgia about rheumatoid arthritis is much less than the studies conducted in other part of the world, as literacy level in Pakistan is very low.¹⁵ Therefore, to test this hypothesis we carried out this study to determine the level of knowledge about rheumatoid arthritis disease among patients presenting with arthralgia in a tertiary care teaching hospital in Pakistan.

Materials and methods:

A cross-sectional study was conducted during the period of September 2015 - March 2016 in the Medical Out-Patient Department (OPD), Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU) Hospital, a tertiary care teaching hospital

in Larkana, Pakistan. Patients were diagnosed by the consultants. Patients above 40 years of age of either gender were included in the study. Patients with history of chronic disease (cardiac diseases, diabetes mellitus, hypertension, and chronic renal failure), addiction, psychiatric illness and on a drug regimen were excluded. Additionally pregnant women were also excluded from the study. A non-probability purposive sampling technique was employed to include the participants in the study. A pre-designed questionnaire with open and close ended questions was used. The questionnaire had three parts. First part was related to basic information on gender age, level of education, living in rural or urban setting, duration of disease, socio-economic status or household income. Second part was mainly related to signs and symptoms as well as previous investigations results. Signs and symptoms includes; joint pain site of pain, intensity of pain, duration of pain, relation to mobility, morning stiffness length and tenderness of joint, presence of skin nodules and treatment if already taking. Third part focused on the etiology, gender predominance and source of information related to rheumatoid arthritis. The questionnaire in English language was also translated in Sindhi as well as in Urdu language for the facilitation of the participants. The informed oral and written consent were taken. The ethical approval was taken from SMBBMU Ethical review committee before conducting the study. The questionnaires were filled by either patients themselves or by the interviewers in case if patient was illiterate.

The mean \pm SD of numeric response variables as age was calculated. Categorical response variables like gender (M/F), level of education, duration of disease, body mass index, household income were presented in frequency and proportion. All the statistical analysis was conducted using Stata statistical software 14 (Stata Corp LP, 4905 Lakeway Drive, College Station, Texas 77845, USA) where p-value < 0.05 was considered statistically significant.

Results:

Three hundred participants were invited to participate in this study, and two hundred and fifty one (251) participants completed the questionnaires. Forty nine (49) either refused to participate or withdrew from the study. Table 1 shows the descriptive analysis of the study. Of the 251 participants, 142 (56.6%) were from rural settings while 233 (92.8%) were females and 18 (7.2%) were males. The overall mean age was 59 ± 8.69 years. There were 139 (55.4%) of the participants were ≥ 60 years of age.

The average BMI was 23.1 ± 4.3 , while 22 (8.8%) were observed obese in our study. Moreover, 144 (57.4%) participants were found non-educated. While the duration of the disease was less than 10 years in 154 (61.4%) of the participants. Moreover, 158 (62.9%) patients had monthly household income in Pakistani rupees (PKR) less than PKR 10,000, 50 (19.9%) PKR 10,000- 19,999, 31 (12.4%) PKR 20,000 – 49,999, whereas 12 (4.8%) had a monthly income of equal or more than PKR 50,000. We did not observed statistical differences between rural and urban participants.

Regarding the knowledge about rheumatoid arthritis (Table 2), 153 (60.9%) knew the name of their disease, however majority were knowing the name of rheumatoid arthritis in their local language. Moreover, 204 (81.3%) participants were aware of the symptoms of the disease, while 186 (74.1%) were aware that rheumatoid arthritis can cause deformities and 179 (71.3%) were aware that the disease is predominantly more common in females. More than ninety one percent (91.2%) knew that the treatment for rheumatoid arthritis is available; however 211 (84.1%) participants selected “the lifelong treatment” as an option for duration of treatment.

Figure 1 shows knowledge of the participants regarding risk factors which can lead to the onset of rheumatoid arthritis disease. We observed that 23(9.2%) participants realized that, genetics play a role, while only 7 (2.8%) participants were aware that smoking can increase the risk. While 27 (10.7%) participants asked that multiple environmental factors can also contribute in the development of rheumatoid arthritis as a risk factor. However, 157 (62.5%) participants did not know about factors which contribute to the onset of rheumatoid arthritis. We observed that, on the basis of responses to the relevant questions, only 4 (1.6%) participants were considered fully aware.

Discussion:

The main finding of our study is lack of knowledge about the rheumatoid arthritis in majority of the participants presenting with arthralgia. A recent study from Rawalpindi - Pakistan, showed the similar results.¹⁶ Whereas, the studies from other part of the world also showed low level of knowledge in the patients on the self-reported knowledge about different aspects of rheumatoid arthritis.^{12, 17} However they found significant association with longer duration of the disease.¹² Another important factor of good knowledge was higher number of visits to the rheumatologist and staying at the hospital due

to rheumatoid arthritis has been reported.¹⁸ Some other studies reported that rheumatoid arthritis patients know more about the nature and prognosis of disease and treatment principles.^{19, 20} It was also observed that older people and women knew less about their disease and treatment, while those with higher education had more knowledge.^{17,19,21} The lower level of awareness in the patients can also be a potential to become a barrier to treatment of the disease, which can be reduced by providing patient centered disease knowledge.^{16, 22} As the progression of the disease is quite slow, patients usually do not have enough knowledge and awareness, so they do not visit clinics until the pain becomes unbearable.

Rheumatoid arthritis is one of the chronic inflammatory diseases which predominately occur in females. Its treatment has undergone though dramatic changes over the last few decades, according to a recent systematic review²³ which can be summarized as: 1- availability of reliable assessment tools for clinical trials and practice; 2- appreciation of the importance of early diagnosis and concomitant start of conventional synthetic disease-modifying antirheumatic drug therapy, including their combination with low-dose glucocorticoids; 3- recognition of the potential to halt or at least minimize damage progression upon attainment of good clinical states; 4- appreciation that methotrexate, if applied in accordance with relevant insights on dose and folate use, is a powerful agent and the anchor drug in RA; 5- development and approval of new biologic disease-modifying antirheumatic drugs. However this is only possible if patients have enough knowledge to report at clinics to become early diagnosed. Lack of public knowledge and awareness can be a major cause of delays in the diagnosis of rheumatoid arthritis.^{16,}

²⁴ The average time from onset of symptoms to the diagnosis of disease is about nine months.²⁵ While another study showed that the median time from onset of symptom to the treatment was 6.1 months.²⁴ A British study evaluated the impact of a rheumatoid arthritis disease education leaflet on patient knowledge, reported that the customized education material increased the knowledge among rheumatoid arthritis patients in the first follow-up.²⁶ A quasi-experimental study from two states in Australia evaluated public awareness of lower back pain, revealed that higher level of awareness was observed even after three years of completion of campaigns.²⁷

Strengths and limitations:

Our study has strengths as well as some limitations.

Cross-sectional studies are useful for description, and we chose this design for our study. The interviews were conducted by one of the primary investigator on a pre-designed questionnaire. Sindhi/Urdu language was used for interviews, which allowed communication between researcher and information provider. Which reduces the misunderstanding between interviewers and interviewees, So, if the interviewee did not understand the question, the researcher could explain the question and obtain relevant data. The study was conducted in one tertiary care hospital of the country and did not cover other hospitals of the same level. However, it covers large number of patients from many districts among three provinces (Sindh, Baluchistan and Punjab) of Pakistan. Other limitations of this study include the absence of a comparative group, the small sample size and the limited time.

Although our results may not be generalized to the entire Pakistani population, further studies are necessary among other geographical areas of Pakistan.

Conclusion:

We observed a lack of knowledge about the rheumatoid arthritis in majority of the participants presenting with arthralgia. The public awareness and education, particularly in patients with arthralgia should be provided. It can be provided through different vertical programs as well as through social media in the country which can play very important role.

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Protection of humans and animals:

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and

to the Helsinki Declaration of the World Medical Association.

Data confidentiality:

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

Conflicts of interest:

The authors reported no conflict of interest.

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Authors' contributions:

MM participated in study design, data collection, data entry, data interpretation, draft writing and editing. MAS, MA participated in study design, data interpretation and editing. OL participated in data interpretation and editing. MHS participated in study design, data analysis and interpretation, draft writing, editing and submission of manuscript. All authors read and approved the final manuscript.

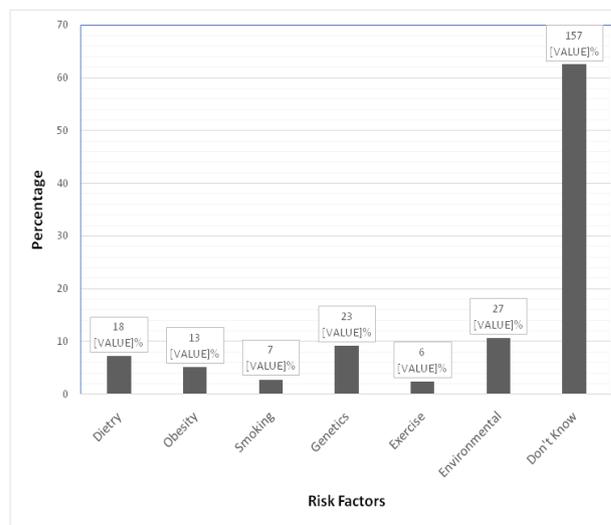


Figure 1. Knowledge regarding risk factors which can lead to the onset of Rheumatoid Arthritis.

Table 1. Descriptive characteristics of study population (n=251).

Characteristics	Rural 142		Urban 109		Total n (%)	P value
	n	%	n	%		
Age		59 ± 8.69				
< 60	62	43.7	50	45.8	112 (44.6)	0.72
≥ 60	80	56.3	59	54.2	139 (55.4)	
Gender						
Female	131	92.2	102	93.6	233 (92.8)	0.68
Male	11	7.8	7	6.4	18 (7.2)	
BMI 23.1 ± 4.3						
< 25	111	78.2	82	75.2	193 (76.8)	0.85
≥ 25 – 29.9	19	13.4	17	15.6	36 (14.4)	
≥ 30	12	8.4	10	9.2	22 (8.8)	
Educational level						
Non-educated	85	59.8	59	54.1	144 (57.4)	0.63
< High School	39	27.5	33	30.3	72 (28.7)	
≥ High School	18	12.7	17	15.6	35 (13.9)	
Duration of disease						
< 10 years	87	61.2	67	61.5	154 (61.4)	0.99
10 – 20 years	36	25.4	27	24.8	63 (25.1)	
>20 years	19	13.4	15	13.7	34 (13.5)	
Household income						
< 10,000 PKR	91	64.2	67	61.5	158 (62.9)	0.95
10,000 – 19,999 PKR	28	19.7	22	20.2	50 (19.9)	
20,000 – 49,999 PKR	17	11.9	14	12.8	31 (12.4)	
≥ 50,000 PKR	6	4.2	6	5.5	12 (4.8)	

BMI: Body Mass Index

PKR: Pakistan Rupee

Table 2. Knowledge about rheumatoid arthritis among arthralgia patients.

Questions	n	%
Have you heard about Rheumatoid Arthritis disease?	153	60.9
Are you aware of symptoms of the Rheumatoid Arthritis disease?	204	81.3
Can it cause deformity?	186	74.1
Do internal organs can be affected?	110	43.8
Does it cause disability?	199	79.3
Is it be caused by genetics?	23	9.2
Is Rheumatoid Arthritis a contagious disease?	123	49.0
Is it predominantly occur in females?	179	71.3
Is treatment available?	229	91.2
Is lifelong treatment required?	211	84.1

References:

1. Scott DL, Wolfe F, Huizinga TW. Rheumatoid arthritis. *Lancet*. Sep 25 2010;376(9746):1094-1108.
2. Arend WP, Firestein GS. Pre-rheumatoid arthritis: predisposition and transition to clinical synovitis. *Nat Rev Rheumatol*. Oct 2012;8(10):573-586.
3. Viatte S, Plant D, Raychaudhuri S. Genetics and epigenetics of rheumatoid arthritis. *Nat Rev Rheumatol*. Mar 2013;9(3):141-153.
4. Cutolo M. Sex and rheumatoid arthritis: mouse model versus human disease. *Arthritis Rheum*. Jan 2007;56(1):1-3.
5. Luckey D, Medina K, Taneja V. B cells as effectors and regulators of sex-biased arthritis. *Autoimmunity*. Aug 2012;45(5):364-376.
6. Alamanos Y, Voulgari PV, Drosos AA. Incidence and prevalence of rheumatoid arthritis, based on the 1987 American College of Rheumatology criteria: a systematic review. *Semin Arthritis Rheum*. Dec 2006;36(3):182-188.
7. Zlatkovic-Svenda MI, Stojanovic RM, S BS-G, Guillemin F. Prevalence of rheumatoid arthritis in Serbia. *Rheumatol Int*. May 2014;34(5):649-658.
8. Yamanaka H, Sugiyama N, Inoue E, Taniguchi A, Momohara S. Estimates of the prevalence of and current treatment practices for rheumatoid arthritis in Japan using reimbursement data from health insurance societies and the IORRA cohort (I). *Mod Rheumatol*. Jan 2014;24(1):33-40.
9. Rossini M, Rossi E, Bernardi D, et al. Prevalence and incidence of rheumatoid arthritis in Italy. *Rheumatol Int*. May 2014;34(5):659-664.
10. Akhter E, Bilal S, Kiani A, Haque U. Prevalence of arthritis in India and Pakistan: a review. *Rheumatol Int*. Jul 2011;31(7):849-855.
11. Hameed K, Gibson T. A comparison of the prevalence of rheumatoid arthritis and other rheumatic diseases amongst Pakistanis living in England and Pakistan. *Br J Rheumatol*. Jul 1997;36(7):781-785.
12. Polluste K, Kallikorm R, Lember M. Level of knowledge and sources of information about the rheumatoid arthritis in Estonian patients. *Rheumatol Int*. May 2014;34(5):675-681.
13. Smolen JS, Aletaha D, Bijlsma JW, et al. Treating rheumatoid arthritis to target: recommendations of an international task force. *Ann Rheum Dis*. Apr 2010;69(4):631-637.
14. Ten Klooster PM, Vonkeman HE, Oude Voshaar MA, Siemons L, van Riel PL, van de Laar MA. Predictors of satisfactory improvements in pain for patients with early rheumatoid arthritis in a treat-to-target study. *Rheumatology (Oxford)*. Jun 2015;54(6):1080-1086.
15. Rehman A, Jingdong L, Hussain I. The province-wise literacy rate in Pakistan and its impact on the economy. *Pacific Science Review B: Humanities and Social Sciences* 2015;1(3):140-144.
16. Khalil Z, Salim B, Nasim A, Malik S. Patients' knowledge on Rheumatoid Arthritis - A study at a tertiary care hospital *Journal of Pakistan Medical Association*. 2017;67 (2):256-260.
17. Meesters J, de Boer I, van den Berg M, Fiocco M, Vliet Vlieland T. Unmet information needs about the delivery of rheumatology health care services: a survey among patients with rheumatoid arthritis. *Patient Educ Couns*. Nov 2011;85(2):299-303.
18. Tammaru M, Polluste K, Lember M. The sources of disease-related information for Estonia's rheumatoid arthritis patients: a qualitative study. *J Clin Nurs*. May 2010;19(9-10):1343-1351.
19. Makelainen P, Vehvilainen-Julkunen K, Pietila AM. Rheumatoid arthritis patients' knowledge of the disease and its treatments: a descriptive study. *Musculoskeletal Care*. Mar 2009;7(1):31-44.
20. Makelainen P, Vehvilainen-Julkunen K, Pietila AM. Rheumatoid arthritis patient education: RA patients' experience. *J Clin Nurs*. Jul 2009;18(14):2058-2065.
21. Neame R, Hammond A, Deighton C. Need for information and for involvement in decision making among patients with rheumatoid arthritis: a questionnaire survey. *Arthritis Rheum*. Apr 15 2005;53(2):249-255.
22. Naqvi AA, Hassali MA, Aftab MT, et al. Development of Evidence-Based Disease Education Literature for Pakistani Rheumatoid Arthritis Patients. *Diseases*. Nov 20 2017;5(4).
23. Smolen JS, Breedveld FC, Burmester GR, et al. Treating rheumatoid arthritis to target: 2014 update of the recommendations of an international task force. *Ann Rheum Dis*. Jan 2016;75(1):3-15.
24. Robinson PC, Taylor WJ. Time to treatment in rheumatoid arthritis: factors associated with time to treatment initiation and urgent triage assessment of general practitioner referrals. *J Clin Rheumatol*. Sep 2010;16(6):267-273.
25. Zafar S, Badsha H, Mofti A, et al. Efforts to increase public awareness may result in more timely diagnosis of rheumatoid arthritis. *J Clin Rheumatol*. Sep 2012;18(6):279-282.
26. Barlow JH, Wright CC. Knowledge in patients with rheumatoid arthritis: a longer term follow-up of a randomized controlled study of patient education leaflets. *Br J Rheumatol*. Apr 1998;37(4):373-376.
27. Buchbinder R, Jolley D, Wyatt M. Population based intervention to change back pain beliefs and disability: three part evaluation. *BMJ*. Jun 23 2001;322(7301):1516-1520.