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Awareness about Rheumatoid Arthritis in A Sample of Iraqi Patients

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Abstract: The autoimmune condition referred to as rheumatoid arthritis is typified by persistent, crippling, and devastating arthritis. To assess rheumatoid arthritis patients' understanding of their disease, its treatment, and its consequences, as well as to investigate the primary determinants of patient knowledge. During June 2024 and June 2025, cross-sectional research was carried out at the Baghdad Teaching Hospital and Rheumatology Outpatient Clinic in Iraq. 250 individuals who satisfied the 2010 ACR/EULAR categorization criteria of rheumatoid arthritis and were at least 18 years old were enrolled using a simple sampling technique. The patient knowledge survey was used to gauge participant awareness. It consisted of 30 questions that assessed the accuracy of the patient's knowledge about RA and its therapies; the right response received one point, while the wrong response or the patient's ignorance received zero; the highest score was thirty. Of the participants, 74 (29.6%) obtained their information from rheumatologists, whereas 60 (24%) obtained their knowledge from social media. Out of nine, the average general knowledge score was 7.54 (1.37). Those with a college degree or higher, patients who learned from rheumatologists, and people with conditions that was present for more than 12 years had the greatest awareness levels. Compared to similar previous research, the current study's knowledge of patients' questionnaire level was greater. The patients' degree of awareness was greatly influenced by the information source, educational attainment, and length of illness.

Keywords: Rheumatoid arthritis, awareness, pathogenesis, and quality of life (qol).

INTRODUCTION

Rheumatoid arthritis (RA) is an autoimmune disease that is characterized by destructive, chronic, and severe arthritis. This is the most common type of inflammatory polyarthritis that affects about 1 percent of the purely adult population of the world. Although a different study established that cumulative risk at the Babil Governorate is 22.74% and the rate of RA increased between 1.60% of 2001 and 3.02% of 2011, the prevalence of RA in Iraq was found to be 1%, which is not significantly different with the prevalence in any other country. [Sharif, K. *et al*., 2018; Firestein, G. S. 2003; Taylor, P. C. *et al*., 2019; Smolen, J. S. *et al*., 2023; Aviña-Zubieta, J. A. *et al*., 2008]

Women are also predisposed to develop RA as compared to men. The optimum age of onset of the disease is the 40s, but it may occur at any age [Yuan, S. *et al*., 2022; Park, E. *et al*., 2022]. Besides being incurable, RA has serious socioeconomic implications and a high reduction in the quality of life of the patients. [Staa, T. V. *et al*., 2006]

It is considered that there is a 60 percent chance that RA can be inherited. RA is hereditary according to studies conducted by epidemiologists [Bongartz, T. *et al*., 2010]. Evidently, the same twins and certain families point out the importance of genetics. Genome-wide association studies (GWAS) and independent replication studies identified potential genes associated with the predisposition to RA [Katz, P. *et al*., 2008; Saleem, F. *et al*., 2015; Joplin, S. *et al*., 2015; Vignos, P. J. *et al*., 2023]. These were the major histocompatibility complex, which was divided into the class I (human leukocyte antigens (HLA)-A, B, C), class II (HLA-DR, DP, and DQ), and class III sub-regions. HLADR1 and HLADR4 are considered to be of great importance as genetic backgrounds. This is more so among individuals having a positive ACPA. Owing to allele-specific oligotyping, 19 allelic variations of HLA-DR4 have quite recently been recognized; some of them have been linked to RA in various ethnic groups. [Lopez-Olivo, M. A. *et al*., 2021]

Among the individuals vulnerable to the HLA-DR4 type, smoking and other bronchial stress factors (e.g., silica exposure) increase the risk of rheumatoid arthritis development [AlShayban, D. M. *et al*., 2020]. Also, smoking and alleles of HLA-DRB1 increase the risk of ACPA. Quantitative or qualitative changes in citrullination of the mucosal proteins can be triggered by

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environmental stresses that stimulate the formation of post-translational alterations via peptidyl arginine deiminase type IV in the lungs and other tissues of the barrier to preventive activity. The developments in the domain of the pathophysiology of RA over the last several decades have led to the creation of new treatment options and methods, which have enhanced clinical outcomes. [Smolen, J. S. *et al*., 2020]

The genetic predisposition and environmental conditions trigger the development of an autoimmune inflammation of the synovial membrane, proliferation of synovial cells, and the formation of pannus [Mollard, E., & Michaud, K. 2021]. Such aggressive granulation tissue that resembles a tumor is promoting bone loss and degradation of articular cartilage. When synovial tissue is dysfunctional, activated lymphocytes, fibroblasts, and macrophages are allowed to enter. The T-lymphocytes produce a wide variety of proinflammatory cytokines, primarily of the growth and tumor necrosis factor, or TNF, and interleukin, or IL, superfamilies. [Dahamsheh, Z. *et al*., 2011; Alawneh, K. M. *et al*., 2014; Naqvi, A. A. *et al*., 2019].

PATIENTS AND METHODS

A cross-sectional study was conducted in Baghdad Teaching Hospital and Rheumatology Outpatient Clinic in Iraq during the six-month period of June 2024 and June 2025. 250 people with a RA diagnosis (according to the criteria of rheumatoid arthritis established by the Americans and the Europeans in 2010) were also chosen with the help of a simple sampling method and with a minimum age of 18. The patients with a serious disability, deaf, and not able to read were not involved in the current study.

The data were obtained through a questionnaire, face-to-face interviews, and analysis used by the researcher. In Part I of the questionnaire, the questions dealt with the sociodemographic traits, including age in years, gender, occupation/job, residence, education level, marital status, cigarette smoking, and alcohol use. Part II inquired of a full history and physical examination, the duration of time the patient has RA, whether the patient had a history of chronic disease (diabetes, hypertension, chronic respiratory disease, kidney failure, and cancer), the history of family members with RA, and weight (in kilograms) and height (in meters).

The BMI of an adult is classified into four categories by the World Health Organization (WHO): underweight (BMI less than 18.5), normal weight (18.5-24.9), overweight (25.0-29.9), and obesity (BMI [?] 30.0). Part III: Information Source; Part IV: The functional status of the participants is assessed based on the American College of Rheumatology Classification of Global Functioning Status with Rheumatoid Arthritis; Part V: Disease activity DAS28, and Part VI: The patient knowledge questionnaire (PKQ) assists in assessing the awareness of the participants.

PKQ was developed in the UK by Hill *et al*. in 1991 to measure disease-specific knowledge of RA patients, and it has since then proven itself as a valid and reliable tool to measure the same. It determines the veracity of the patient regarding his/her knowledge concerning RA and its therapies. It has 30 questions; a correct answer brings out one point, an incorrect answer or an unsure patient gets no points, and the maximum score is thirty.

The PKQ consists of four subscales general knowledge of RA (nine questions about the etiology, symptoms and blood tests needed to carry out the follow-up); treatment of RA (seven questions in non-steroidal NSAIDs and antirheumatic drugs and the methods of taking them), physical exercise (seven questions in relation to physical exercise and RA) including about the activities that should be conducted when joints are stiff and painful, the most convenient manners of performing daily exercises and what to do in case of pain in the wrist.

The data entry and analysis were done using the Statistical Package as the Social Sciences (SPSS) and Microsoft Excel 2019 in agreement with statistics analysis. The primary focus of the descriptive analysis was on frequencies and percentages. Continuous variables were represented in mean (+- Standard Deviation (SD)). Both the t-test and ANOVA tests were used to find the statistical significance between the groups of research. The 0.05 p-values were considered significan.

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RESULTS

Table 1. Demographic characteristics of patients with rheumatoid arthritis.

Characteristics		N	%
Gender	Female	151	60.4
	Male	99	39.6
Age group (years)	≤30	79	31.6
	31-40	82	32.8
	41-50	63	25.2
	≥51	26	10.4
Marital state	Married	72	28.8
	Single	151	60.4
	Divorced or a widow	27	10.8
Residency	Urban	132	52.8
	Rural	118	47.2
Educational level	Illiterate	21	8.4
	Primary school	88	35.2
	Secondary school	79	31.6
	College or higher	62	24.8
Employment	Unemployed	143	57.2
	Employed	83	33.2
	Retired	12	4.8
	Student	7	2.8
	Military	5	2.0
Smoking	No	197	78.8
	Yes	53	21.2
Alcohol intake	No	244	97.6
	Yes	6	2.4

Table 2. A historical record of chronic disease in patients with rheumatoid arthritis.

Disease	N	%
Diabetes	31	12.4
Hypertension	19	7.6
Chronic respiratory disease	13	5.2
Chronic Kidney Disease	4	1.6
Cancer	2	0.8
Total	69	27.6

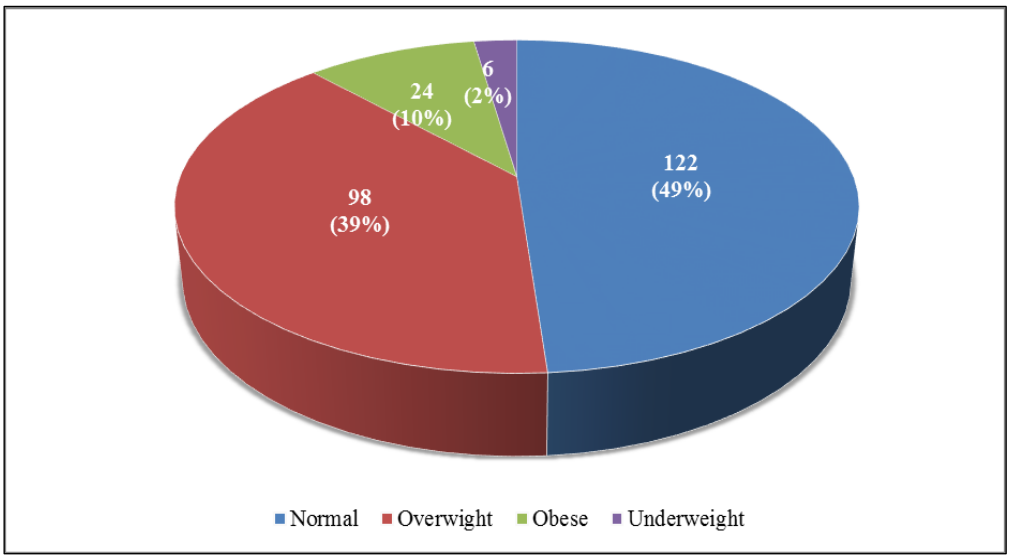

Figure 1: Classification of body mass index in patients with rheumatoid arthritis

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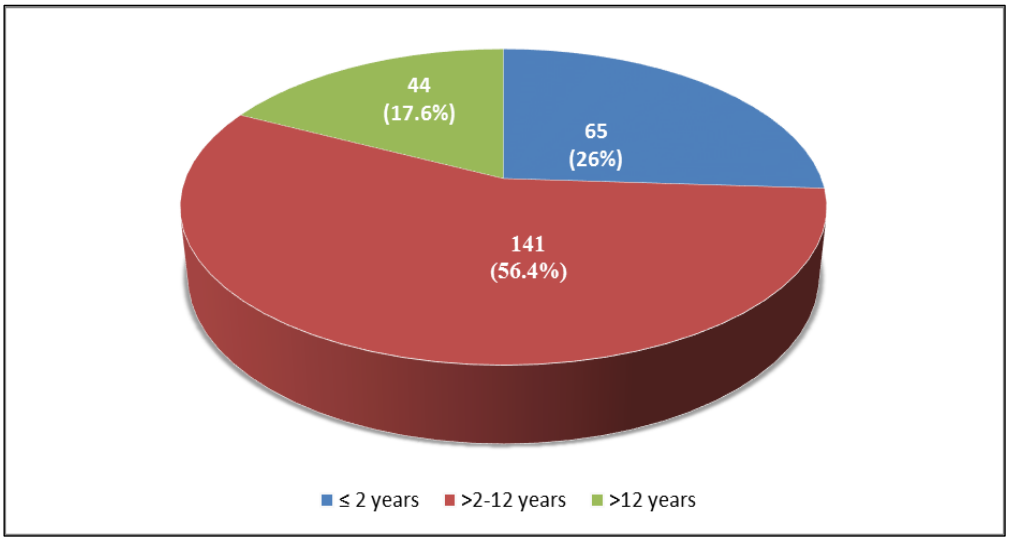

Figure 2. Distribution of the disease's duration on the patients with rheumatoid arthritis.

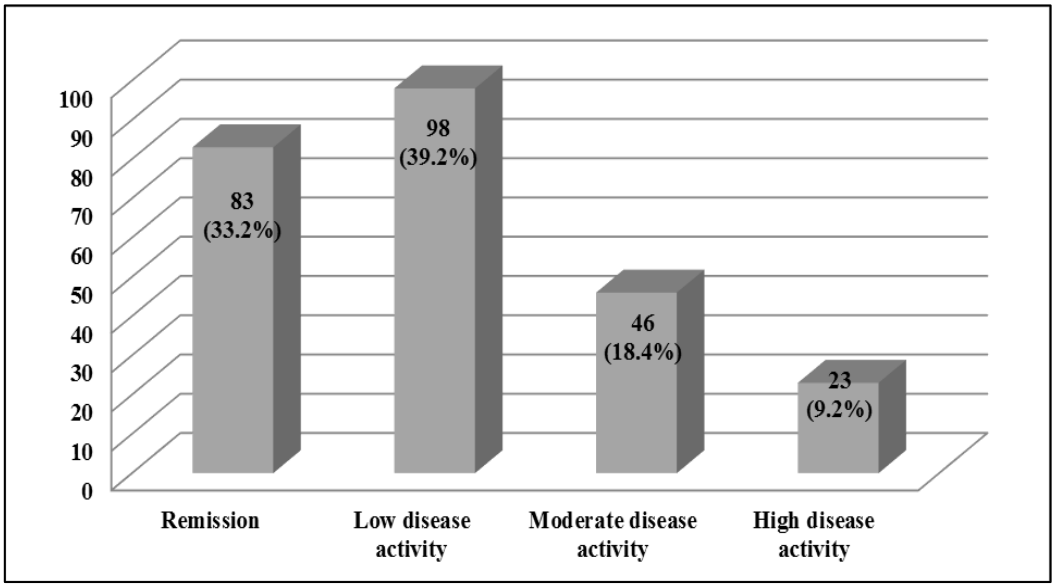

Figure 3. Categorization of disease activity in patients with rheumatoid arthritis.

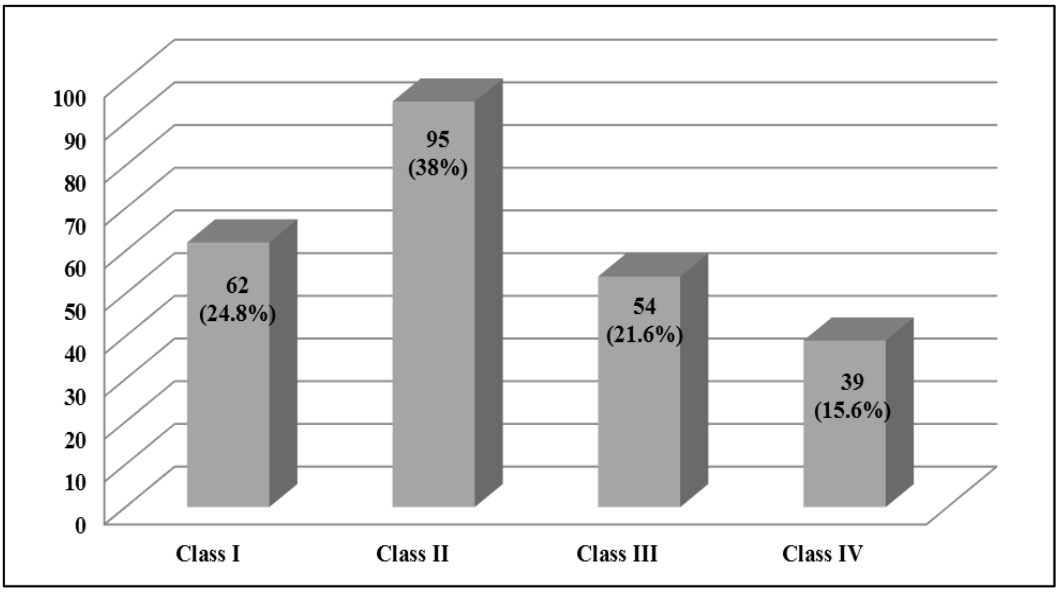

Figure 4. Evaluating the functional outcomes of rheumatoid arthritis in patients.

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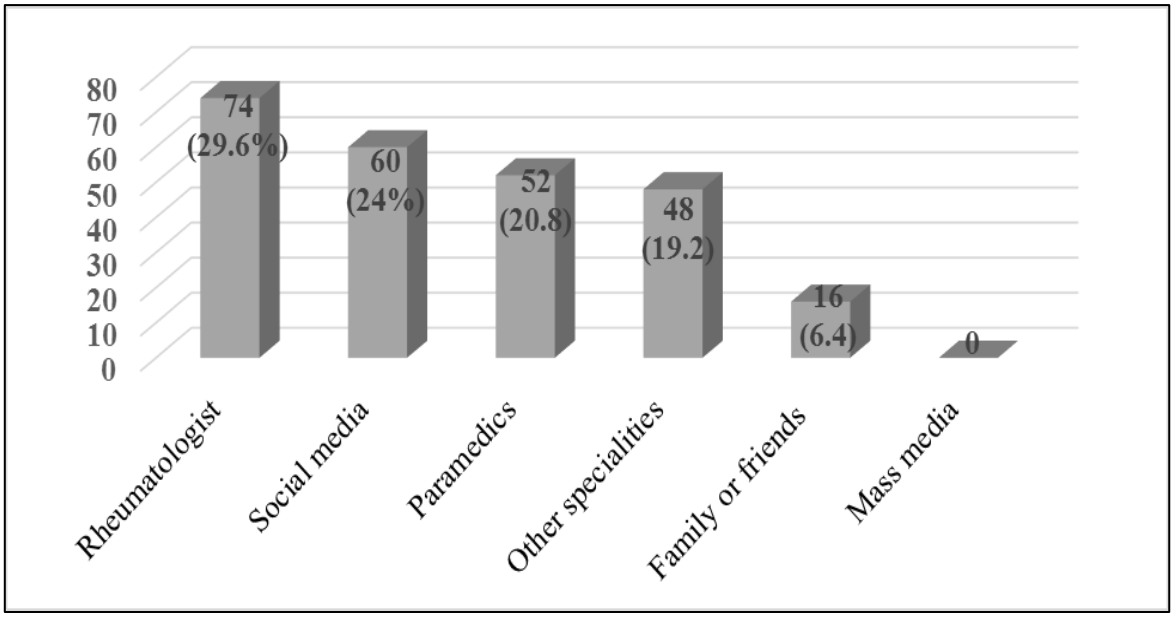

Figure 5. Identifying clinical outcomes of obtaining the source of information.

Table 3. Assessment of clinical outcomes in the knowledge questionnaire of patients.

Domain	Minimum	Maximum	Mean (±SD)
General knowledge	0	9	7.54 (±1.37)
Treatment knowledge	0	7	5.11 (±1.31)
Exercise regimens	0	7	4.97 (±1.32)
Joint protection	0	7	4.84 (±1.49)
Total Patient Knowledge Questionnaire	0	30	22.4 (±4.19)

Table 4. Assessment the levels of knowledge questionnaire in patients based on sociodemographic status.

Characteristics		N	Mean (±SD)	P-value
Gender	Female	151	22.2 (±4.2)	0.189*
	Male	99	22.9 (±4.1)	
Age group (years)	≤30	79	21.8 (±4.6)	0.250**
	31-40	82	22.9 (±3.9)	
	41-50	63	22.9 (±3.7)	
	≥51	26	21.9 (±4.4)	
Marital state	Married	72	22.5 (±3.9)	0.678**
	Single	151	22.5 (±4.3)	
	Divorced or a widow	27	21.8 (±4.2)	
Residency	Urban	132	22.6 (±4.0)	0.567*
	Rural	118	22.3 (±4.4)	
Educational level	Illiterate	21	20.4 (±3.8)	**0.001****
	Primary school	88	21.7 (±4.1)	
	Secondary school	79	22.6 (±4.2)	
	College or higher	62	24.0 (±3.8)	
Employment	Unemployed	143	22.6 (±4.1)	0.373**
	Employed	83	22.7 (±4.1)	
	Retired	12	20.8 (±4.5)	
	Student	7	20.2 (±5.7)	
	Military	5	20.0 (±2.1)	

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Table 5. Evaluation the knowledge questionnaire of patients based on each disease duration, presence of other diseases, and source of information.

Characteristics		N	Mean (±SD)	P-value
Disease duration	≤2	65	21.2 (±4.3)	**<0.001****
	>2-12	141	22.4 (±4.0)	
	>12	44	24.4 (±3.7)	
Patients had other diseases	No	194	22.4 (±4.2)	0.548*
	Yes	56	22.7 (±4.1)	
Source of information	Social media	60	22.5 (±4.5)	**0.001****
	Mass media	0		
	Rheumatologist	74	23.9 (±3.7)	
	Other specialities	48	21.6 (±3.6)	
	Paramedics	52	21.9 (±4.2)	
	Family or friends	16	19.8 (±4.0)	
Another RA case in the family	No	227	22.4 (±4.1)	0.908*
	Yes	23	22.3 (±4.6)	

DISCUSSION

The focus of the study was to dismantle the myths of rheumatoid arthritis (RA) and its connection with depression, where better education has to be established towards promoting early disease diagnosis and decreasing stigma. The demographic analysis showed that most participants were females, which is in correspondence to the findings of previous studies, which were carried out in Egypt, Turkey, and Iraq [Nygaard, G., & Firestein, G. S. 2020]. Most of the RA patients were women in the study. Moreover, as compared to previous research studies in Bangladesh and Iraq, where older age brackets were more prevalent, over half were still under 40. [Van Riel, P. L., & Renskers, L. 2016]

As mentioned in the study, 49 percent of respondents were with normal body mass index (BMI), although the preceding research found that a lower percent of RA patients in Egypt were found to have normal weight. A meta-analysis has indicated that the higher the BMI is, the higher the probability of having RA, and as such, it may be utilized as a preventative therapy. Data were obtained through numerous different sources, predominantly rheumatologists, paramedics, and social media, which reflected trends in research done in Bangladesh and Turkey. It is important to note that the average level of the Patient Knowledge Questionnaire (PKQ) during the present research was higher than the outcomes of the works implemented in Bangladesh and Turkey, which means that the general level of knowledge about RA is quite high. [Rudan, I. *et al*., 2015; Alawneh, K. M. *et al*., 2020; Serdar, C. C. *et al*., 2021]

Unlike a few studies that implied more knowledge among specific age groups or genders in the group, the analysis on PKQ scores showed that there is no significant correlation between gender or age. However, there was a great influence of knowledge on educational achievement, and college graduates had a greater score, which matches studies done in Turkey and Poland [Gullo, S. *et al*., 2016; Cawley, A. *et al*., 2023]. The increased levels of knowledge were proved by the fact that higher levels of knowledge were observed among those that had over 12 years of RA experience, which correlates with similar results in Finland and is known to be a challenging process of knowledge acquisition among RA patients.

Unlike a number of Turkish investigations [Dougados, M. *et al*., 2014], the higher level of knowledge was significantly observed among patients who received their information with the help of rheumatologists, and the presence of any other chronic illnesses or a family history did not influence the scores of PKQ significantly. Altogether, the findings emphasize the importance of targeted teaching and reliable sources of information to enhance the educational level that patients have regarding RA.

CONCLUSION

The level of patient knowledge questionnaire is larger in comparison with the previous research of a similar nature. Information source and educational attainment, as well as the duration of illness, made a considerable difference to the degree of PKQ. The measures need to be undertaken to enhance the process of patient education by limiting access to other information sources and largely depending on rheumatologists.

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To identify additional factors that can influence the understanding of the patient, these researches should be repeated in the future.

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