Medical Science

Rheumatic disease knowledge and perceptions in the Qassim region of Saudi Arabia in 2022

Ahmad Alkhdairi[1*], Ayman Alharbi[2], Sami Alrasheedi[1], Mousa Alrashdi[1], Feras Aljameeli[1], Aseel Alnadawi[1], Shouq Alsaegh[1], Norah Alharbi[1], Lubna Alsuraykh[1], Jawaher Almutairi[1], Alhanouf Almutairi[1], Mariyyah Albishri[1], Thana Alsenaid[1]

Authors' Affiliation:
[1]Department of Medicine, Unaizah College of Medicine and Medical Sciences, Qassim University, Unaizah, Kingdom of Saudi Arabia
[2]Department of Medicine, College of Medicine, Qassim University, Buraydah, Kingdom of Saudi Arabia

[*]Corresponding author
Department of Medicine, Unaizah College of Medicine and Medical Sciences, Qassim University, Unaizah,
KSA
Email: Ahmad.Alkhdairi@ucm.edu.sa/A.Alkhdairi@qu.edu.sa
ORCID: https://orcid.org/0000-0001-6913-040X

ABSTRACT

Introduction: Rheumatic disorders (RDs) are autoimmune and inflammatory conditions where your immune system frequently targets your joints, muscles and bones, as well as other internal organs. The global burden of rheumatic disease is increasing, due to a lack of knowledge about how to deal with them from the beginning. *Goal:* The project's objective is to evaluate the general public's level of knowledge level regarding RDs in the Qassim region of Saudi Arabia in 2022. *Methods:* A cross-sectional study of the general population was done. A digital survey was used and distributed to the public. The survey includes demographic data (i.e., age, gender, etc.) and general population knowledge towards RDs. *Results:* Among the 490 surveyed participants, 70.2% were females and 35.5%, where age spectrum between 18 and 25 years of age. The prevalence of participants who had been diagnosed with RD was 9.6%. The outcome of this study showed that the overall mean knowledge score was 8.80 (SD 4.28), out of 22 points. Poor knowledge was found in 61.8%, moderate knowledge in 35.1% and good knowledge in only 3.1%. Increased knowledge was more frequently seen in females, respondents with bachelor's or higher degrees and those who had a previous diagnosis of RD. *Conclusion:* There was insufficient knowledge among the general population regarding rheumatic diseases. Females with a higher level of education and who have previously been diagnosed with RD have higher knowledge levels. However, more research is needed to establish the level of knowledge about the RDs in our region.

Keywords: Rheumatic disease, knowledge, general population, rheumatoid arthritis.

1. INTRODUCTION

Rheumatic disorders are autoimmune and inflammatory conditions where your immune system commonly targets your joints, muscles and bones, as well as other internal organs. In addition to other crucial organs, these

DISCOVERY
SCIENTIFIC SOCIETY

disorders can harm the heart, kidneys, skin, eyes, neurological system, lungs and other tissues. Patients may experience sensations that are too severe to bath or dress them. Patient with additionally, even fundamental tasks like walking can be agonizing and challenging, if not impossible, resulting in high healthcare costs and job loss (Severo et al., 2010). The prevalence, frequency, scope and severity of clinical manifestations and laboratory findings appear to be impacted by a variety of variables, including environmental, microbiological, social, geographic and ethnic components. In a minority of patients with RD such as, organ involvement and failure may occur as a result of their severe symptoms (Tan et al., 1982). The direct correlation between accelerated atherosclerosis and ischemic heart diseases among inflammatory rheumatic disease patients and possibly early death has been proven (Haskard, 2004). Given that rheumatological conditions are frequently chronic and lifelong, it is crucial to educate the public and patients about them. People's views and behaviors about specific diseases will alter as their understanding increases. Additionally, patient education enhances therapeutic compliance, supports psychological wellness and boosts patients' ability to manage conditions (Severo et al., 2010).

Research that was done among the general public in Jeddah, Saudi Arabia, revealed that people have little knowledge of and misconceptions concerning osteoarthritis (OA) (Alyami et al., 2020), which is not a rheumatic disease by definition rather than a degenerative and mechanical arthritic nature. The burden of rheumatic diseases on the world and in the United States is rising, not because there aren't enough effective treatments for them but rather because people don't know how to prevent them in the first place. As a result, everyone in society has a duty to share any knowledge they acquire with those who might benefit from it. This study will give insight on society's perceptions of many aspects of rheumatism by confirming and evaluating the degree to which the Qassim population is aware of different rheumatic diseases and the accompanying signs, symptoms and complications, as well as their general knowledge score.

2. METHODOLOGY AND DATA ANALYSIS

The study was conducted among the general population to assess rheumatic disease (RD) knowledge and perceptions in the Qassim Region of Saudi Arabia in 2022, from February to July. The digital survey used for this cross-sectional study was created using "Google Forms TM" and two rheumatology experts assessed the modified survey before it was released publicly. A questionnaire was provided to the intended participants through online distribution or was immediately filled out via electronic devices using a non-probability sampling technique after gaining approval from the institutional review board (IRB) committee in the Qassim region. The sample size was calculated manually using "Epi Info TM" to be 384 and the final enrolled number of participants was 490, who were recruited using the convenience sampling technique.

The inclusion criteria include any adult (age 18 or more) participant who is currently living in the Kingdom of Saudi Arabia. Any participant at the time of the study who was not currently living in the Kingdom of Saudi Arabia was excluded. The questionnaire includes the socio-demographic characteristics (age, gender, professions, educational background, area of residence, etc.) of the participants and their knowledge and perceptions regarding rheumatic diseases in general and specifically regarding rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and ankylosing spondylitis (AS). The questionnaire was tested and validated in a pilot study with 10 participants and their results were used in the final analysis shown in Chart1.

Data statistical analysis

The knowledge of the general population regarding RDs has been assessed using a 22-item questionnaire with "true" coded as 1 and "false" or "I don't know" coded as 0 as the answer options. Negative questions had been reverse-coded to avoid bias in the score. The sum of the 22 items has been used to compute the overall knowledge level (score). A score between 0 and 22 has been computed; a higher score denotes more understanding of rheumatic diseases. By using 50% and 75% as the cut-off points to determine the level of knowledge, participants were categorized as having poor knowledge if the score was below 50%, 50% to 75% were categorized as having moderate knowledge and above 75% were categorized as having good knowledge levels.

Numbers (N) and percentages (%) were used to describe categorical variables, whereas the mean and standard deviation were used to describe continuous variables. The Mann-Whitney Z-test (MWZ-test) was used to assess differences in knowledge scores based on participants' socio-demographic characteristics. The Shapiro-Wilk and the Kolmogorov-Smirnov tests were used to conduct the normality test. There is a non-normal distribution for the knowledge level (score). In two-tailed analyses, the statistical significance cut-off was p 0.05. The statistical software for social sciences, version of 26, was used to analyze all data (SPSS).

3. RESULTS

Socio-demographic characteristics of participants

A total of 490 surveys were completed. The socio-demographic details of the respondents were shown in Table 1. The most common age group was 18–25 years (35.5%), with females being dominant (70.2%). Respondents who lived in Unaizah were 58% More than half (54.5%) were married and 72.4% had bachelor's degrees. Respondents who were employed constitute 30%. Of those who were employed, 91.2% were working in non-medical fields. The proportion of participants who had previously been diagnosed with rheumatological disease was 9.6%.

Table 1 Socio-demographic characteristics of respondents (n=490)

Data of Study	
Age group	
18 - 25 years	174 (35.5%)
26 - 30 years	48 (09.8%)
31 - 35 years	48 (09.8%)
36 - 40 years	27 (05.5%)
41 - 45 years	38 (07.8%)
46 - 50 years	29 (05.9%)
51 - 55 years	40 (08.2%)
56 - 60 years	36 (07.3%)
>60 years	50 (10.2%)
Gender	
Male	146 (29.8%)
Female	344 (70.2%)
Place of residence	
Buraidah	62 (12.7%)
Unaizah	284 (58.0%)
Al rass	71 (14.5%)
Albadaya	29 (05.9%)
Others	44 (09.0%)
Marital status	
Single	223 (45.5%)
Married	267 (54.5%)
Educational level	
Less than high school	20 (04.1%)
High school	99 (20.2%)
Bachelor's degree	355 (72.4%)
Postgraduate	16 (03.3%)
Occupational status	
Employed	147 (30.0%)
Unemployed	121 (24.7%)
Retired	91 (18.6%)
Student	131 (26.7%)
If employed, profession (n=147)	
Medical field	13 (08.8%)
Non-medical field	134 (91.2%)
Have you been diagnosed previously with rheumatologic disease or following up in a rheumatology clinic?	
Yes	47 (09.6%)

No	443 (90.4%)

Assessment of the knowledge regarding rheumatic diseases

As in Table 2 the assessment of knowledge regarding rheumatic diseases (RD). It can be observed that 75.9% were correct: RD can be diagnosed in people of any age. 69.6% were aware of the clinical manifestations of RD. 68% knew that patients with RD are not wheelchair-bound and 55.7% believed that RD can be cured. 46.7% of those polled believed that osteoarthritis medication could alleviate pain and stiffness. 35.3% disagreed that rheumatic patients should rest and do only limited activities. Approximately 30.6% agreed that RD constitutes more than 100 of its kind. Only 20.6% thought that patients with RD could die from complications. Relatively few participants (14.7%) were correct that the affected joints of rheumatic patients cannot be replaced by artificial joints. Only 5.5% were aware that osteoarthritis was not the most common kind of RD. Approximately 38.8% knew that SLE was not only affecting the skin. 20.2% knew that fibromyalgia is RD, while 19.4% believed that MS is not. Most respondents were correct that gout patients should be strict with a dietary plan in order to improve. Only 20% were correct that gout is related to hypertension. Approximately three-quarters (74.9%) disagreed that RA affects only women's organs, while 66.7% showed a good understanding of RA's correct meaning and 44.9% knew that RA may affect internal body organs. Also, 19% were aware that RA is not caused by a poor diet or cold and damp weather. In addition, poor knowledge was seen regarding ankylosing spondylitis effects on the patient's social life (32.4%) and wrist joint (23.5%), whereas only 20% were aware that ankylosing spondylitis is a kind of RD. According to the above statement, the overall mean knowledge score was 8.80 (SD 4.28), with the majority of respondents (61.8%) having poor knowledge levels, 35.1% having moderate knowledge levels and only 3.1% having good knowledge levels.

Table 2 Assessment of the knowledge regarding rheumatic diseases (n=490)

Knowledge statement	N (%)
Only older persons are affected by rheumatic disorders (F)	372 (75.9%)
Particularly indicative of rheumatic disease are pain and stiffness in the joints and muscles (T)	341 (70%)
The majority of rheumatic patients will eventually use a wheelchair (F)	333 (68.0%)
There is no curative therapy for any form of rheumatic disease (F)	273 (55.7%)
While OA remedies cannot reverse the condition, they can reduce pain and stiffness (T)	229 (47%)
Rheumatic patients should generally stay as still and immobile as possible (F)	173 (35.3%)
Rheumatic illnesses may present in over a hundred varieties (T)	150 (30.6%)
Rheumatic disease's complications can cause death (T)	101 (20.6%)
Artificial joints can be used to replace rheumatoid arthritis patients' damaged joints (F)	72 (14.7%)
The most prevalent type of rheumatic disease is osteoarthritis (degenerative joint disease) (F)	27 (05.5%)
Systemic lupus erythematosus (SLE) affects the skin only (F)	190 (38.8%)
Rheumatic diseases include fibromyalgia (fibromyalgia syndrome) (T)	99 (20.2%)
One example of rheumatic diseases, is multiple sclerosis (F)	95 (19.4%)
Gout patients need to restrict certain food types in order to get improved (T)	382 (78.0%)
Gout is related to hypertension (T)	98 (20.0%)
RA affects only women's organs (F)	367 (74.9%)
A rheumatic condition called rheumatoid arthritis causes inflammation in the joints (T)	327 (66.7%)
RA may affect internal body organs (T)	220 (44.9%)
Rheumatoid arthritis is caused by poor diet and cold (or bad diet, chilly, moist) weather (F)	93 (19.0%)
Ankylosing spondylitis (AS) affects patients' social life (T)	159 (32.4%)
AS affects wrist joint (T)	115 (23.5%)
AS is a classic example of rheumatic diseases (T)	98 (20.0%)
Total knowledge score (mean ± SD)	8.80 ± 4.28
Category of knowledge	
Poor	303 (61.8%)
Moderate	172 (35.1%)
Good	15 (03.1%)

(T) – Statement is True; (F) – Statement is False.
RA – Rheumatoid arthritis.

Variations in participants' knowledge scores based on their demographic characteristics

When measuring the differences in the score of knowledge in relation to the demographic characteristics of participants (Table 3), it was found that more women had higher knowledge scores than men did. (Z = 2.222; p = 0.026), being more educated (Z = 5.642; p<0.001) and having a previous diagnosis of RD (Z = 2.656; p = 0.008).

Table 3 Variations in participants' knowledge scores based on their demographic characteristics (n=490)

Factor	Knowledge Score (22) Mean ± SD	Z-test	P-value [§]
Age group			
≤35 years	8.94 ± 4.57	0.903	0.367
>35 years	8.64 ± 3.89		
Gender			
Male	8.09 ± 4.43	2.222	0.026 **
Female	9.11 ± 4.18		
Place of residence			
Inside Unaizah	8.57 ± 4.16	1.213	0.225
Outside Unaizah	9.13 ± 4.44		
Marital status			
Single	8.85 ± 4.73	0.651	0.515
Married	8.77 ± 3.87		
Educational level			
High school or below	6.63 ± 4.34	5.642	<0.001 **
Bachelor or higher	9.50 ± 4.02		
Occupational status			
Employed/Student	8.90 ± 4.55	0.631	0.528
Unemployed/Retired	8.67 ± 3.89		
Previously diagnosed with rheumatologic disease			
Yes	10.8 ± 3.86	2.656	0.008 **
No	8.59 ± 4.27		

[§] P-value was determined utilizing MWZ-test.
** Significant.

4. DISCUSSION

This study investigated the knowledge and perception of the general population living in the Qassim Region regarding rheumatic diseases. The knowledge of the general public about RDs was inadequate. According to our findings, approximately 61.8% of respondents had a poor level of knowledge, 35.1% had a moderate level of knowledge and only 3.1% had a good level of knowledge (mean score: 8.80; SD 4.28, out of 22 points). Few international studies have documented poor understanding of various RDs among the general population (Wardt et al., 2000; Zarghoona et al., 2017; El-Saman et al., 2020). On the contrary, a study reported in Aseer region, Saudi Arabia Mukharrib et al., (2018) found that the population's knowledge regarding osteoarthritis (OA) was sufficient. 82.6% of the sample population was considered to have a good level of awareness, while in Taif (Atalla et al., 2020) and Riyadh (Al-Kaabba et al., 2021), both studies indicated a high level of awareness about gout.

Data in our study suggest that female respondents were more associated with having better knowledge. This is consistent with a report (El-Saman et al., 2020) and based on their reports, awareness and knowledge about RD were significantly higher in females, while in Riyadh (Haikel and Al-Tulaihi, 2019) and Iraq (Jassim and Majeed, 2021) they found no significant differences in the level of knowledge between males and females, which did not coincide with previous reports. Furthermore, we also noted that participants who were previously diagnosed with RD tended to exhibit better knowledge levels as compared to those who had no previous disease diagnosis. This is similar to that of Pakistani report (Zarghoona et al., 2017). Based on their accounts, there was a significant positive correlation between the duration of RA disease and the level of awareness (p<0.05).

In a Jazan region study (Hazzazi et al., 2021) the knowledge of patients with rheumatoid arthritis (RA) was associated with a higher level of education. This is also true in our report, as we found increasing knowledge to be concomitant with increasing levels of education. This has been confirmed by the paper by El-Saman et al., (2020) where in awareness and knowledge of RD is significantly higher among participants with higher education levels, single participants, those working for cash and residents living in the city. However, in our study, age group, place of residence, marital status and occupational status were not the relevant factors for knowledge, which did not coincide with previous reports but was in accordance with a study done in the United Kingdom (Lubrano et al., 1998).

Poor knowledge was identified in our population as a result of various knowledge-related questionnaires. For example, in the general facts about RDs, the participants' perceived knowledge was suboptimal, specifically in the contexts related to the activities of patients with RD and whether they should rest or not (35.3%). Respondents were also unaware of the estimated number of RDs (30.6%), uncertain that the disease can lead to death (20.6%) and uncertain that the affected joints can be replaced by artificial ones (14.7%). On the other hand, respondents exhibited better knowledge of other general facts such as RDs' most affected age group (74.9%), clinical characteristics of RDs (69.6%), the fact that RD patients are not wheel chair bound (68%) and the fact that not all RDs can be cured (55.7%). These results are almost in line with the larger Netherland analysis (Wardt et al., 2000). According to reports, respondents have no idea about the various kinds of RDs and they underestimate RDs' prevalence.

Regarding rheumatoid arthritis, especially as a common RD category, our subjects have the false impression that it only affects women's organs (74.9%) and approximately two-thirds (66.7%) are aware of its correct definition. However, only 19% of them agreed that RA is not caused by a poor diet and cold or damp weather. And this indicates controversy of awareness of knowledge questions related to RA. In the study that was done among Pakistani patients (Zarghoona et al., 2017), only 13% stated that RA was related to genetics and only 1.5% were aware that an increased risk of RA was associated with smoking, while nearly half of them (48.5%) were unsure about which factors contributed to the onset of RA. The average correct score was 38.5% and it was clear that people didn't know enough when they were asked what age group has the most people with RA (43.6%) and if surgery can cure the disease (29.6%). This controversy, elaborate this issue to address the gaps in knowledge, taking into consideration the identified findings on different studies.

Most of our respondents were not familiar with ankylosing spondylitis (AS). Only 20% knew that it was one of RDs manifestations. Few of them were aware that it affects the wrist joint (23.5%) or that it will ultimately affect social life (32.4%). This scenario mirrored the Iraqi study of Jassim and Majeed, (2021) based on the report, AS patients demonstrated a low level of knowledge, high levels of ignorance and wrong thoughts about specific aspects of their disease. This indicates the need for more health education and awareness regarding this common RD.

Only 5.5% had the false impression that osteoarthritis (OA) is the most common kind of RD, while approximately 46.7% were aware that medication for OA may not cure the disease but merely provide pain relief and stiffness. Respondents from the Aseer region reports had a higher level of awareness of OA (Mukharrib et al., 2018), had a large proportion of the population (89%) knew the preventive measures for knee OA and showed better knowledge about the relieving measures (84.1%).

In addition, our respondents were shown to have a lack of familiarity regarding other RD facts. For instance, only 20.2% knew that fibromyalgia is a kind of RD and only 19.4% disagreed that multiple sclerosis is a kind of RD, whereas 38.8% were familiar with the fact that systemic lupus erythematosus may not only affect the skin. As a result, extensive awareness campaigns to improve knowledge are suggested.

5. CONCLUSION

The knowledge of the general population regarding rheumatic diseases was deficient. However, better knowledge can be seen more frequently in females with better education who have been previously diagnosed with rheumatological disease. It is necessary to address the gaps in knowledge, taking into consideration the identified findings in this study. This can be addressed through extensive awareness campaigns. Mass media and social media may play significant roles in delivering health education to the public through information dissemination. In addition, necessary health education should be given to patients during clinic visits to improve their knowledge so they can effectively manage the rheumatic-related disease at home.

Ethical approval

Author's contributions

Introduction/literature review: Alkhdairi, Aseel Alnadawi, Shouq Alsaegh, Norah Alharbi, Lubna Alsuraykh, Jawaher Almutairi, Alhanouf Almutairi, Mariyyah Albishri, Thana Alsenaid.

Methods: Alkhdairi, Aseel Alnadawi, Shouq Alsaegh, Norah Alharbi, Lubna Alsuraykh.

Data collection/analysis: Alkhdairi, Jawaher Almutairi, Alhanouf Almutairi, Mariyyah Albishri, Thana Alsenaid.

Discussion/conclusion: Alkhdairi, A Alharbi, S Alrasheedi, M Alrashdi, Aljameeli.

Funding

Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

REFERENCES AND NOTES

1. Alharbi MD, Aljohani BO, Alaithan ZN, Alsamadani SK, Alshabibi AI, Alqahtany BS, Aldeheem AA, Alrumih YA, Aldoaje AT, Almuawi MM, Alqahtani F, Almesned FA, Alzubaidi MA, Alotaibi MS, Al-solmi MS, Alqahtani MJ, Busaleh HA, Alsubaie AA. Public awareness of systemic lupus erythematosus in Al-Dammam cmohammedity in Saudi Arabia. Egypt J Hosp Med 2018; 70:1891-1893. doi: 10.12816/0044865

2. Al-Kaabba AF, Altamimi NO, Alqumayzi MM, Alshahrani K, Aldalbahi A, Al-Rajeh H, Alkanaan D. Awareness of gout disease among Saudi adult population in Riyadh city. Int Res J Med Biomed Sci 2021; 6(3):28-36. doi: 10.15739/irjmbs.21.005

3. Atalla A, Albuqami M, Albogami M, Alharthi A, Altowairqi T. Awareness of gout disease among adult population in Taif city. Int J Med Dev Ctries 2020; 4(2):365–9. doi: 10.24911/IJMDC.51-1575556977

4. El-Saman A, Eman MR. Khalifa A, El-Zahraa MM, Ahmed A. Evaluation of awareness, knowledge and attitudes regarding common rheumatic diseases (Rheumatoid Arthritis and Systemic Lupus Erythematous) in Sohag Governorate. Egypt J Commun Med 2020; 38(2):25–36. doi: 10.21608/ejcm.2020.89887

5. Haikel KA Bin, Tulaihi A. Awareness of systemic lupus erythematosus among primary health care patients in Riyadh, Saudi Arabia. Saudi Med J 2019; 40(2):177–82. doi: 10.15537/smj.2019.2.23920

6. Haskard DO. Accelerated atherosclerosis in inflammatory rheumatic diseases. Scand J Rheumatol 2004; 33(5):281-92. doi: 10.1080/03009740410010281

7. Hazzazi A, Ageeli M, Muyidi A, Abulgasim A, Yateemi A, Alhakami N. Population awareness about rheumatoid arthritis in Jazan region, Saudi Arabia. Int J Med Dev Ctries 2020; 3(12). doi: 10.24911/IJMDC.51-1576010943

8. Jassim N, Majeed S. The assessment of knowledge in sample of Iraqi patients with ankylosing spondylitis. Rheumatol (Bulgaria) 2020; 28(1):31-40. doi: 10.35465/28.1.2020.pp31-40

9. Lubrano E, Helliwell P, Moreno P, Griffiths B, Emery P, Veale D. The assessment of knowledge in ankylosing spondylitis patients by a self-administered questionnaire. Br J Rheumatol 1998; 37(4):437-41. doi: 10.1093/rheumatology/37.4.437

10. Mukharrib MS, Al-Sharif MN, Alshehri TK, Shaker A. Knowledge of knee osteoarthritis among general population in Aseer region. J Fam Med Prim Care 2018; 7(6):1389. doi: 10.4103/jfmpc.jfmpc_290_18

11. Severo M, Gaio R, Lucas R, Barros H. Assessment of the general public's knowledge about rheumatic diseases: Evidence from a Portuguese population-based survey. BMC Musculoskelet Disord 2010; 11(1):211. doi: 10.1186/1471-2474-11-211

12. Taal E, Rasker JJ, Seydel ER, Wiegman O. Health status, adherence with health recommendations, self-efficacy and social support in patients with rheumatoid arthritis. Patient Educ Couns 1993; 20(2):63–76. doi: 10.1016/0738-3991(93)90122-d

13. Tan EM, Cohen AS, Fries JF, Masi AT, Mcshane DJ, Rothfield NF. The 1982 revised criteria for the systemic lupus erythematosus. Arthritis Rheum 1982; 25:1271-7. doi: 10.1002/art.1780251101

14. Wardt EMVD, Taal E, Rasker JJ. The general public's knowledge and perceptions about rheumatic diseases. Ann Rheum Dis 2000; 59(1):32–8. doi: 10.1136/ard.59.1.32

15. Zarghoona K, Salim B, Nasim A, Malik S. Patients' knowledge on Rheumatoid Arthritis: A study at a tertiary care hospital. J Pak Med Assoc 2017; 67(2):256–60.