PREVALENCE OF RHEUMATOID ARTHRITIS AND DISTRIBUTION BY AGE AND GENDER IN THE FERIZAJ REGION

Vahide REXHAJ[1], Mije REÇI[1], Sheval MEMISHI[1]

[1*]*Department of Biology, Faculty of Natural Sciences and Mathematics*
[*]*Corresponding author e-mail: v.rexhaj211120@unite.edu.mk*

Abstract

Rheumatoid arthritis (RA) is a chronic autoimmune disease of considerable clinical and epidemiological importance. The aim of this study was to assess the prevalence of RA and its distribution according to demographic characteristics in the Ferizaj region during the period 2020–2025. A total of 10,406 individuals evaluated for RA-related symptoms were included in the study, and descriptive statistical analysis was applied.
The results showed a marked increase in RA prevalence, rising from 22.06% in 2020 to 53.89% in 2024, followed by a decline to 27.85% in 2025 (preliminary data). The overall prevalence was 35.92%. RA was more frequently observed in females, accounting for up to 67.40% of cases, while age distribution demonstrated a clear predominance in individuals over 50 years (46.27%). Younger age groups showed considerably lower proportions. In conclusion, the findings indicate an increasing trend in RA prevalence and a strong association with age and gender, highlighting the need for early diagnostic strategies and continuous monitoring of populations at risk.

Keywords: Rheumatoid arthritis, prevalence, risk factors, gender, age, epidemiology.

Introduction

Rheumatoid arthritis (RA) represents a chronic autoimmune inflammatory condition that primarily targets synovial joints, often resulting in progressive structural damage, physical deformities, and significant functional impairment. Beyond its articular manifestations, Smolen et al. (2016) emphasize that RA involves systemic complications that can affect multiple organ systems, notably increasing the risk of cardiovascular comorbidities. On a global scale, the prevalence of RA is estimated between 0.5% and 1%, marking it as a major public health challenge that substantially diminishes the quality of life and increases disability rates (Cross et al., 2014; Safiri et al., 2019).
The epidemiological profile of the disease reveals a distinct demographic imbalance, with a higher incidence observed in females compared to males. Furthermore, both the occurrence and prevalence of RA tend to escalate with advancing age. As noted by Scott et al., (2010) and Myasoedova et al., (2010), this gender-based disparity is likely driven by a combination of hormonal fluctuations and specific immunological pathways, while the age-related increase reflects a lifetime of cumulative exposure to environmental triggers. The underlying etiology remains multifactorial, involving a sophisticated interaction between genetic susceptibility and external factors such as tobacco use, chronic infections, and lifestyle influences (McInnes & Schett, 2011).
Contemporary diagnosis of RA integrates clinical evaluation with the detection of specific serological biomarkers, particularly rheumatoid factor (RF) and anti-cyclic citrullinated peptide (anti-CCP) antibodies. The implementation of the ACR/EULAR 2010 classification criteria, as detailed by Aletaha et al., (2010), has been pivotal in facilitating early detection and allowing for timely therapeutic interventions. Prompt management is critical to halting irreversible joint destruction and optimizing long-term patient outcomes.
In light of these factors, regional epidemiological assessments are vital for mapping disease trends and refining healthcare strategies. Consequently, the present study aims to evaluate the

prevalence and demographic distribution (age and gender) of rheumatoid arthritis in the Ferizaj region over the 2020–2025 period, utilizing a comprehensive analysis of longitudinal laboratory data.

Materials and Methods

This study is a retrospective descriptive analysis conducted to assess the prevalence and characteristics of rheumatoid arthritis in the Ferizaj region during the period 2020–2025. The study is based on the analysis of existing laboratory data.
A total of 10,406 individuals tested for rheumatoid arthritis were included in the analysis, selected from licensed laboratories in Ferizaj. Inclusion criteria were limited to individuals with complete laboratory data, including rheumatoid factor (RF), anti-cyclic citrullinated peptide (anti-CCP) antibodies, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and complete blood count. Individuals with other rheumatologic diseases, infectious or malignant conditions, as well as those with incomplete data, were excluded.
The data were systematically recorded in an electronic database, including demographic variables (age and gender) and key laboratory parameters. Data analysis was performed using descriptive statistics.
The study was conducted in accordance with ethical standards for scientific research. All data were handled anonymously and confidentially, with no direct intervention involving the individuals.

Results and Discussion

3.1 Prevalence of Rheumatoid Arthritis by Year (2020–2025) : To assess the prevalence of rheumatoid arthritis over the study period, data from individuals tested for this condition in the Ferizaj region between 2020 and 2025 were analyzed. Table 1 presents the number of individuals tested, the number of confirmed rheumatoid arthritis cases, and the corresponding percentage for each year of the study.

Table 1. Prevalence of Rheumatoid Arthritis by Year (2020–2025)

Years	**Tested (n)**	**RA Positive (n)**	**%**
2020	1868	412	22.06%
2021	1641	309	18.83%
2022	1754	751	42.82%
2023	1921	828	43.11%
2024	2084	1123	53.89%
2025	1138	317	27.85%
Total	**10406**	**3740**	**35.92%**

As shown in Table 1, the prevalence of rheumatoid arthritis exhibited notable variability over the study period. Following a slight decrease in 2021 (18.83%), a substantial increase was observed in 2022 (42.82%), which remained relatively high in 2023 (43.11%), reaching a peak in 2024 at 53.89%. In 2025, a decline to 27.85% was observed; however, this should be

interpreted with caution due to the preliminary nature of the data. Overall, the prevalence for the entire study period was 35.92%.

3.2 Distribution by Gender: To examine the distribution of rheumatoid arthritis cases by gender, data from individuals diagnosed during the period 2020–2025 were analyzed. Table 2 presents the numerical frequency and percentage of rheumatoid arthritis cases among females and males for each year of the study.

Table 2. Distribution of Rheumatoid Arthritis Cases by Gender (2020–2025)

Years	**Females (n)**	**%**	**Males (n)**	**%**
2020	300	72.82%	112	27.18%
2021	159	51.46%	150	48.54%
2022	429	57.12%	322	42.88%
2023	543	65.58%	285	34.42%
2024	757	67.40%	366	32.60%
2025	203	64.04%	114	35.96%
Total	**2391**	**63.93%**	**1349**	**36.07%**

As shown in Table 2, rheumatoid arthritis was more frequently observed in females than in males throughout the study period. The proportion of affected females ranged from approximately 51% to over 67%, with the highest value recorded in 2024. Males accounted for a lower proportion in all years, with a more comparable distribution observed only in 2021. Overall, females represented 63.93% of cases, while males accounted for 36.07%, reflecting a clear gender predominance in the distribution of the disease.

3.3 Distribution by Age Group: To analyze the distribution of rheumatoid arthritis cases across age groups, data from individuals diagnosed during the period 2020–2025 were examined. Figure 1 presents the percentage distribution of rheumatoid arthritis cases by age group, providing a clear overview of disease distribution in relation to age.

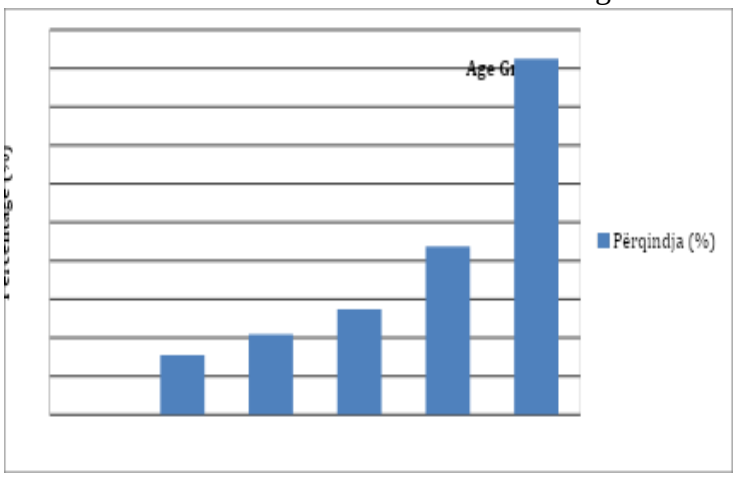

Figure 1. Age-specific distribution of RA cases (%) in the Ferizaj region (2020–2025)

The results shown in Figure 1 indicate that the prevalence of rheumatoid arthritis increases with advancing age. The highest proportion of cases was observed in the group aged over 50 years (46.27%), followed by the 40–50 years age group (21.83%). Younger age groups showed

considerably lower proportions, specifically 13.69% for individuals aged 30–40 years, 10.46% for those aged 20–30 years, and 7.75% for the 10–20 years group, while no cases were recorded among newborns. These findings demonstrate a progressive increase in disease prevalence with increasing age.

3.4 Discussion: The epidemiological data obtained from the Ferizaj region (2020–2025) reveal a significant and dynamic increase in the prevalence of rheumatoid arthritis (RA), peaking at 53.89% in 2024. This pronounced upward trend aligns with global observations reported by Safiri et al., (2019) and Cross et al., (2014), who have highlighted the escalating global burden of RA. The rise in confirmed cases in our study may be attributed to a combination of factors, including enhanced laboratory diagnostic sensitivity particularly through the wider adoption of anti-CCP testing and increased clinical awareness among the local population.

The fluctuations observed, especially the temporary dip in 2021 (18.83%), might reflect the impact of external variables such as the COVID-19 pandemic on healthcare-seeking behavior and laboratory testing priorities. Furthermore, the sharp increase observed between 2022 and 2024 underscores the necessity for continuous monitoring to determine whether this represents a true increase in incidence or a backlog of late-diagnosed cases. Although a decline was noted in 2025 (27.85%), it is critical to note that these are preliminary findings representing only a portion of the year, as emphasized by Smolen et al., (2016) regarding the importance of longitudinal data integrity.

Regarding gender distribution, our results (63.93% female predominance) are remarkably consistent with the existing literature. As noted by Scott et al., (2010) and Myasoedova et al., (2010), the higher susceptibility of females to RA is fundamentally linked to hormonal influences—specifically the role of estrogens in modulating both innate and adaptive immune responses—and sex-linked genetic predispositions. Our findings in Ferizaj reinforce this biological paradigm, showing that the gender gap remains a stable feature of the disease's epidemiology in the region.

The age-related distribution observed in this study provides further evidence that RA is a progressive condition of middle and late adulthood. The high concentration of cases in the over-50 cohort (46.27%) likely reflects "immunosenescence"—the age-related decline in immune regulation—and the cumulative exposure to environmental triggers such as tobacco use and chronic inflammatory stressors over several decades. These patterns match the reports of Safiri et al., (2019), who found that the peak incidence of RA globally occurs in the sixth and seventh decades of life.

In conclusion, the high prevalence rate (overall 35.92%) found in this study highlights RA as a significant public health priority for the Ferizaj region. These findings advocate for the implementation of standardized early-screening protocols and the strengthening of rheumatological care pathways to mitigate long-term disability in the aging population.

Conclusions

This longitudinal study identifies a significant rise in rheumatoid arthritis (RA) prevalence in the Ferizaj region (2020–2025), peaking at 53.89% in 2024. The data confirm a strong predominance among females (63.93%) and individuals over 50 years of age. These findings emphasize the impact of demographic and hormonal-immunological factors on RA epidemiology. The observed trend underscores the urgent need for standardized early screening

and better access to specialized diagnostics. Ultimately, continuous monitoring and the use of biomarkers (RF and anti-CCP) are vital for timely diagnosis and reducing long-term disability in the region.

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