



## Oral Manifestations in Patients with Rheumatoid Arthritis in the Rheumatology Clinic in Southeast Iran

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### Abstract

**Background:** Rheumatoid Arthritis (RA) as an autoimmune disease involving joints can cause oral manifestations in patients. This study aimed to investigate the prevalence of oral manifestations in patients with RA referred to the rheumatology clinic of Zahedan University of Medical Sciences in 2022.

**Methods:** The present study was a descriptive cross-sectional observational study and included all patients with RA who were referred to Imam Ali Hospital, Zahedan Rheumatology Clinic for treatment in 2022. The method was non-probability convenience sampling and the obtained information was recorded in the information form made by the researcher. After collecting the data, the raw data was entered into the statistical software SPSS version 24 and analyzed using t-test and Fisher's exact test.

**Results:** According to the findings of the present study, there is no significant difference between the frequency of oral manifestations of 55 patients with RA referred to the rheumatology clinic of Zahedan University of Medical Sciences in the two groups of men and women ( $P$ -value=0.50). Also, the average age of people in the two groups of patients with oral manifestations and patients without oral manifestations is not statistically significant ( $P$ -value=0.50). The frequency distribution of oral manifestations of patients with RA showed that xerostomia was the most frequent among oral manifestations.

**Conclusions:** It seems that the frequency of oral mucosal lesions in people with RA is high and their importance can be emphasized as a possible complication of the disease.

**Keywords:** RA, Oral manifestations, Oral lesions.

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## Introduction

The term Rheumatoid Arthritis (RA) was first described by Alfred Garrod in 1885. RA is a disease defined by inflammatory arthritis of the large and small joints<sup>1</sup>. It is the most common autoimmune disease and affects an estimated 2% of the US population aged 60 years and older, with a higher

prevalence in women. It is a systemic and chronic disease that primarily affects the small joints of the feet and hands. Both environmental and genetic factors play a role in the etiology and pathogenesis<sup>2</sup>. It can begin at any age, but peaks in the fourth or fifth decade of life<sup>3</sup>. The cause of this disease is unknown, but there is ample evidence that it is a complex genetic disorder<sup>4</sup>. The initial manifestation of this disease occurs in synovial tissues and is characterized by symmetrical multi-articular inflammation that can lead to progressive joint damage<sup>5</sup>. This disease is a polyarthritis that frequently affects the metacarpophalangeal joints of the hands and the proximal interphalangeal joints of the fingers. The elbows, wrists, ankles, and knees can also be affected, and in some patients, all joints are affected<sup>2</sup>.

Today, with quick and timely diagnosis and treatment, patients do not have organ dysfunction. RA can lead to joint destruction and severe movement limitations, especially if left untreated. Early diagnosis of RA and appropriate treatment can reduce its complications and increase patients' ability to perform daily activities. Treatment regimens for RA usually include corticosteroids and disease-modifying antirheumatic drugs (DMARDs)<sup>6</sup>.

Oral health-related quality of life (HRQoL) seems to be reduced in RA patients. Movement limitations, pain caused by inflammatory processes and psychosocial impact on patients' lives have caused a significant decrease in the quality of life related to oral health compared to the healthy population. In patients with persistently active RA, periodontal diseases including alveolar bone loss and tooth loss have been reported<sup>7</sup>.

There are many oral manifestations along with autoimmune diseases. Both the disease and the treatments prescribed to patients can result in oral manifestations<sup>8</sup>. Long-term use of NSAIDs and methotrexate can cause stomatitis with oral ulcers, the use of minocycline increases intraoral pigmentation, and the use of prednisone or TNF- $\alpha$  inhibitors can also make the patient more susceptible to developing opportunistic infections<sup>9</sup>. The involvement of the temporomandibular joint (TMJ) as a synovial joint can be seen in RA<sup>10</sup>. TMJ involvement has been reported in 1% to 60% of RA patients,



and the reason for this difference may be attributed to the use of different criteria for determining TMJ disorder<sup>5</sup>.

Many patients with chronic inflammatory rheumatic diseases experience oral manifestations, which are the first clinical signs of the disease. Sjögren's syndrome is the most significant oral health problem directly related to RA. In this syndrome, salivary gland activity is decreased due to the infiltration of inflammatory cells, making a person susceptible to oral mucosal disease. Moreover, lichenoid lesions, telangiectasias, petechiae, and ulcers are the most common manifestations of oral mucosal involvement<sup>8</sup>.

RA patients should monitor oral and dental hygiene because improper oral hygiene can lead to tooth decay and periodontal diseases. Bacterial infections caused by these diseases, in turn, are an important risk factor for systemic infection. This is especially true in patients whose immune system is weakened by the use of immunosuppressive drugs and antirheumatic drugs<sup>6</sup>. Considering the wide spectrum of oral manifestations and the lack of comprehensive statistics in Iran, the present study was conducted to investigate the frequency of oral manifestations in patients with RA referred to the rheumatology clinic of Zahedan University of Medical Sciences in 2022.

## Materials and Methods

In the cross-sectional descriptive research, data (n=55 participants) were collected from the patients with RA who were referred to Imam Ali Hospital, Rheumatology Clinic in 2022. The ethics committee of the Zahedan University of Medical Sciences approved the study. Eligible participants were selected according to the available sampling method. A written informed consent was obtained from the participants in which the procedure and objectives of the study were explained in detail. Inclusion criteria were: **1.** they had no other systemic disease except RA; **2.** RA patients who have been diagnosed for at least 6 months; **3.** age more than 18 years; **4.** not using tobacco and alcoholic beverages; **5.** not using drugs or diseases affecting oral saliva; **6.** Informed and free consent to participate in the study. Patients were excluded because of unwillingness to continue cooperation in any of the stages of the study.

Considering the following values and using the results of Khatibi et al.'s study,  $\alpha=0.05$ ,  $p=0.40$ , and  $d=0.13$ , after calculations, 55 patients were eligible. The sample size was determined using the following formula for sample calculation:

$$n = \frac{Z_{1-\alpha/2}^2 P(1-P)}{d^2}$$

Intraoral lesions were examined by a dental student using a disposable mirror and recorded in an information form. Oral manifestations such as mucosal pallor, increased calculus formation, petechiae, purpura, and enamel hypoplasia, TMJ disorders such as click, deviation, and pain during chewing were recorded. Dry mouth was objectively assessed by the Tongue Blade test. Sticking the tongue to the oral mucosa indicated that the mucosa was not sufficiently moistened by saliva. Also, dry mouth was assessed subjectively based on the patient's complaints of difficulty chewing, swallowing, speaking, etc. and the result was then recorded in the form.

The results were analyzed with SPSS 18.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics (e.g. mean, percentage, standard deviation and frequency) were calculated. To analyze the data, Kolmogorov-Smirnov statistical tests, the parametric t-test and Fisher's exact test were used to compare two nominal variables. The significance level was set at 0.05.

## Results

In the current study, the population studied included 55 patients with RA who were referred to the rheumatology clinic of Imam Ali Hospital in Zahedan for treatment in 2022. Of those studied, 45 (81.8%) were women and 10 (18.2%) were men. The mean age ( $\pm$ SD) of the participants was 47.43 ( $\pm$ 9.21) years. The youngest participant was 30 years old and the oldest participant was 68 years old. 50.9% of patients with RA referring to the rheumatology clinic have oral manifestations. Table 1 presents the frequency of oral manifestations in patients with RA according to gender and age. Table 2 shows the frequency of different types of oral manifestations in patients with RA (n=55).

Table 1. Comparison of the frequency of oral manifestations in patients with RA according to gender and age (n=55)

Variables	Total	Oral Manifestations		P-value
		Yes	No	
N (%)	55 (100)	28 (50.9)	27 (49.1)	-
Age (yr) mean $\pm$ SD	47.43 $\pm$ 9.21	48.25 $\pm$ 8.51	46.52 $\pm$ 10.04	0.50
Gender				
Female	45 (81.8)	24 (53.3)	21 (46.7)	0.503
Male	10 (18.2)	4 (40)	6 (60)	

Table 2. The frequency of different types of oral manifestations in patients with RA (n=55)

Type of oral manifestations	N	%
Dry Mouth	16	31
Jaw pain and noise	11	21
Masticatory Spasm	5	10
Limited jaw movement	4	8
Oral pest	4	8

Candidiasis	3	6
Geographic tongue	2	4
Morning stiffness of jaws	2	4
Glossitis	1	2
Gingivitis	1	2
Periodontitis	1	2
Increased gum volume	1	2

## Discussion

A comparison of the frequency of oral manifestations in patients with RA referred to the rheumatology clinic at Zahedan University of Medical Sciences showed that there was no significant difference between the two groups of men and women. The average age of people in the two groups of patients with oral manifestations and patients without oral manifestations is not statistically significant. The frequency distribution of oral manifestations of patients with RA showed that dry mouth was the most common of the oral manifestations.

In the present study, 50.9% of patients with RA had oral manifestations. In a 2010 study, Pedrazas et al. reported the prevalence of oral lesions at 55.1%, which is very close to the results of the present study<sup>11</sup>. In the study of Aliko et al. in 2014, which was conducted to investigate the prevalence and characteristics of oral mucosal lesions in patients with RA, they reported the prevalence of oral lesions at 58.9%, which is slightly higher than the results of the present study<sup>12</sup>. A study by Khatibi et al. in 2014 showed that out of 385 patients with RA in this study, 20 were men and 365 were women, 156 (40.5%) had lesions of the oral mucosa. This study is comparable to the study by Geterud et al. in 1991, which was conducted to investigate oral symptoms, especially dry mouth and swallowing problems in people with RA. In that study, a frequency of 21% was reported in the case group, which is lower than in the present study<sup>13</sup>. Meyer et al. in 2000 reported the prevalence of oral lesions in people with RA at 59.1%, which is slightly higher than the results of our study<sup>14</sup>. In a study conducted by Parvaie et al. in 2018 to investigate oral mucosal lesions, decayed/missing/filled teeth (DMFT) index and modified gingival index (MGI) in RA patients, 80% of patients had oral mucosal lesions that it is more than the result of the current study<sup>15</sup>.

In the present research, there is no significant difference between the frequencies of oral manifestations of patients with RA in the two groups of genders. Similar results were obtained from the studies of Khatibi et al., Pedrazas et al., and Aliko et al.<sup>11-13</sup>. Also, the present study shows a higher percentage of women suffering from RA than men. The results of the study by Geterud et al. and Khatibi et al. and Mohahdian et al. also show a higher percentage of women suffering from RA than men, which is similar to the present study<sup>16</sup>.

In the present study, the difference between the frequency of oral manifestations of patients with RA in the average age of people in the two groups of patients with oral manifestations and patients without oral manifestations is not statistically significant. In a study conducted by Movahedian et al. (2006) to investigate the manifestations of temporomandibular joint

involvement in patients with RA, the age range of the patients was 20-76 years (average 49 years), including 66 women and 14 men. In this study, there were 45 women and 10 men in the age range of 30-68 years (average 47 years). Aliko et al. and Pedrazas et al. also showed that there is no significant relationship between age and RA, and the results of these studies are in line with the present study<sup>12</sup>.

The results of current research showed dry mouth (31%) was the most frequent among the oral manifestations. Also, dry mouth (66.3%) was the most common finding in a study by Parvaie et al., which is similar to the present study. Khatibi et al.'s study showed that the most common finding is dry mouth (14%), which is similar to the present study<sup>5</sup>. In a study conducted by Alahmed et al. in 2016 to evaluate oral findings and the relationship between oral findings and the clinical activity index of RA, dry mouth was the most common oral finding (60%), followed by temporomandibular joint disorders (31.8%) was the most common finding<sup>17</sup>. However, in the review study by Mays et al., the most common lesions of the oral mucosa in patients with RA were temporomandibular joint involvement, periodontitis, and dry mouth, which is inconsistent with our result<sup>18</sup>. Also, in a study conducted by Pawelczyk-Madalinska et al. in 2006 to investigate the characteristics and frequency of pathological changes in the mucous membrane of the oral cavity and dry mouth in patients with RA with outpatient treatment and long-term hospitalization, the results showed that erogenous and fissure were the most manifestations, which is not consistent with the current research<sup>19</sup>. A study by Moen et al. in 2005 investigated TMJ involvement, salivary gland dysfunction, and oral mucosal lesions in RA and investigated their relationship with overall disease activity, dry mouth, and disorders. Joints were the most common findings, and the results of this study are the same as the present study<sup>20</sup>. In the study by Pedrazas et al. in 2010, the most common oral manifestations observed in patients with RA treated with methotrexate were ulcerative/erosive lesions (60.7%) and candidiasis (10.7%). The present study is not the same<sup>11</sup>.

It seems that the frequency of oral mucosal lesions in people with RA is high and their importance can be emphasized as a possible complication of the disease.

## Ethical Considerations

This research was approved by the Research Ethics Committees of Zahedan University of Medical Sciences, Zahedan, Iran (Approval ID: IR.ZAUMS.REC.1400.406).

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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