Journal of Experimental and Clinical Medicine
https://dergipark.org.tr/omujecm

Research Article

J Exp Clin Med
2022; 39(3): 842-847
doi: 10.52142/omujecm.39.3.48

Awareness of temporomandibular joint involvement in rheumatoid arthritis patients by physicians dealing with rheumatology

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Received: 14.06.2022 • **Accepted/Published Online:** 30.06.2022 • **Final Version:** 30.08.2022

Abstract

The aim of this study is to evaluate the attitudes and awareness of physicians dealing with rheumatology about temporomandibular joint (TMJ) involvement while evaluating rheumatoid arthritis (RA) patients with the TMJ questionnaire we created. For this purpose, an online TMJ evaluation questionnaire consisting of 10 questions was prepared and completed by the physicians via the Google Forms application. Among those who participated in the survey; the percentage of correct answers to the question of whether the TMJ joint is a synovial joint was 95.5%. While the rate of those who correctly knew that more than half of the RA patients had TMJ involvement remained at 35.5%, the rate of those who correctly identified that RA rarely affected the first TMJ was 75.5%. The rate of those who knew that TMJ involvement is frequently bilateral in RA was 62.7%. The number of participants who answered the question of what the clinical findings are in TMJ involvement correctly was over 60%. When asked about radiological findings in TMJ involvement in RA, more than 75% of the participants expected joint space narrowing, erosion, and mandibular destruction. On the other hand, the number of physicians who expected radiological findings such as ostephitis and sclerosis as radiological findings was below 40%. While the number of physicians who performed TMJ inquiries and examinations in RA patients was only 15.5%, if there was a TMJ complaint, this rate increased to 80%. The number of participants using objective tests for the evaluation of TMJ was below 30%. Also, 85.5% of the participants ignored TMJ involvement in RA. In conclusion, our study showed that physicians dealing with rheumatology have low awareness of TMJ involvement in RA.

Keywords: Temporomandibular joint, rheumatoid arthritis, awareness, survey

1. Introduction

The temporomandibular joint (TMJ) is a synovial joint formed between the mandible and the temporal bones. When the functional anatomy of the joint is examined, it has an extremely special design based on neuromuscular control and the integrity of the soft tissue elements. This joint has an important place in the human body because it takes part in vital functions such as chewing, swallowing, and speaking.

According to the National Institute of Dental and Craniofacial Research, TMJ problems have been reported as the second most common complaint after low back pain (1). They can affect up to 5-12% of the entire population, which can create enormous treatment-related costs (1).

Since Rheumatoid arthritis (RA) is an inflammatory arthritis involving synovial joints, it is not surprising that TMJ joint involvement. However, TMJ involvement is rarely the first joint involved in the course of RA (2, 3). Therefore, TMJ complaints and evaluation in RA patients are often neglected by physicians because they focus more on other joints. This neglect may cause serious damage to the joints and disability (4).

Our clinical observations are that RA patients do not have obvious TMJ complaints and unless they apply to the physician with these complaints, history asking, physical examination, and imaging studies about TMJ are insufficient by physicians.

When we went through the literature, we could not find any studies showing how much the physicians dealing with RA tended to TMJ problems. In this study, we aimed to evaluate the attitudes and awareness of physicians dealing with rheumatology about TMJ involvement while evaluating

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RA patients with the TMJ questionnaire we created.

2. Material and Methods

2.1. Participant and data collection

An online questionnaire consisting of 10 questions was prepared to evaluate the attitudes and awareness of physicians towards TMJ involvement in RA patients, and an e-mail form was prepared for physicians (rheumatology specialists and sub-branch assistants, physical medicine and rehabilitation specialists and assistants, internal medicine specialists and assistants) who are interested in rheumatology throughout Turkey. An invitation containing the subject, purpose and method of the study was sent via mail and/or online groups. In this survey, the volunteers were not asked for personal information except their age. The study questionnaire form is shown in Table 1. A 'Google Forms' application link was sent to those who accepted to participate in the study survey.

Table 1. Attitude and Awareness Questionnaire towards Temporomandibular Joint Involvement in Patients with Rheumatoid Arthritis

1. The temporomandibular joint is a synovial joint.		
a) Correct	b) No answer	c) Wrong
2. Temporomandibular joint involvement occurs in more than half of rheumatoid arthritis patients.		
a) Correct	b) No answer	c) Wrong
3. Temporomandibular joint is rarely the first joint affected in patients with rheumatoid arthritis.		
a) Correct	b) No answer	c) Wrong
4. The temporomandibular joint is often bilaterally involved in patients with rheumatoid arthritis.		
a) Correct	b) No answer	c) Wrong
5. What are the clinical findings in temporomandibular joint involvement? (More than one option can be ticked)		
a) Pain in the joint	b) Swelling	
c) Morning stiffness in the joint	d) Weakness in chewing muscles	
e) Sound coming from the joint	f) Joint movement limitation	
6. What are the radiological findings seen in temporomandibular joint involvement? (More than one option can be ticked)		
a) Decreased joint space	b) Erosion	
c) Destruction of the mandibular condyle	d) Osteophyte	e) Sclerosis
7. I do the temporomandibular joint questioning and examination in every rheumatoid arthritis patient whether there is a complaint or not.		
a) Yes	b) No	c) No answer
8. I do temporomandibular joint questioning and examination only in patients with rheumatoid arthritis who have complaints.		
a) Yes	b) No	c) No answer
9. Which examination methods do you know exactly for temporomandibular joint? (More than one option can be ticked)		
a) Evaluation of pain and tenderness by palpation		
b) Evaluation of crepitation and clicking sounds coming from the joint with palpation	c) Incision opening measurement	
d) Measurement of lateral glide distances	e) Measurement of the strength of the chewing muscles	
10. Do you think that you are more interested in other joints in rheumatoid arthritis patients and ignore the temporomandibular joint?		
a) Yes	b) No	c) No answer

While determining the sample size, 10 patients per item is regarded optimum in terms of validity in survey research (5). Given that our survey had ten items, we aimed for a sample size of at least 100. The survey was set to last for a maximum of six months. If the minimum required number of participants is not reached within 6 months, it has been decided to extend these periods by one month until the minimum required number is reached, or to wait until the end of the 6-month period even if the minimum required number is reached, and to reach the maximum number of participants.

This study was conducted between October 2021 and March 2022, following the approval of the local ethics committee (Number: E-77192459-050.99-48888, Decision number 2021/606), in accordance with the principles of the Declaration of Helsinki. The study was designed as a cross-sectional, descriptive survey study.

2.2. Statistics

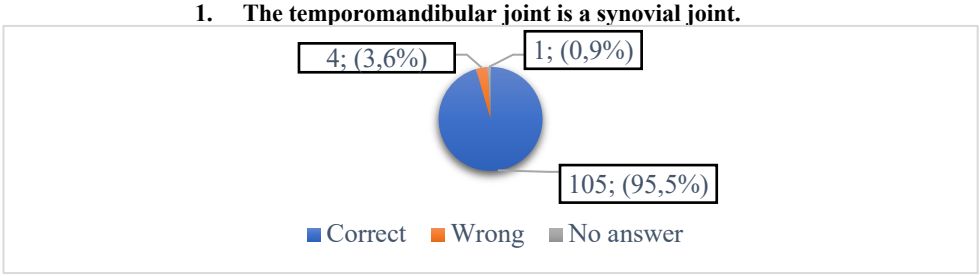
Only descriptive statistical analysis was performed on the collected data. SPSS version 22 (IBM Corp., Armonk, NY, USA) was used for this process.

3. Results

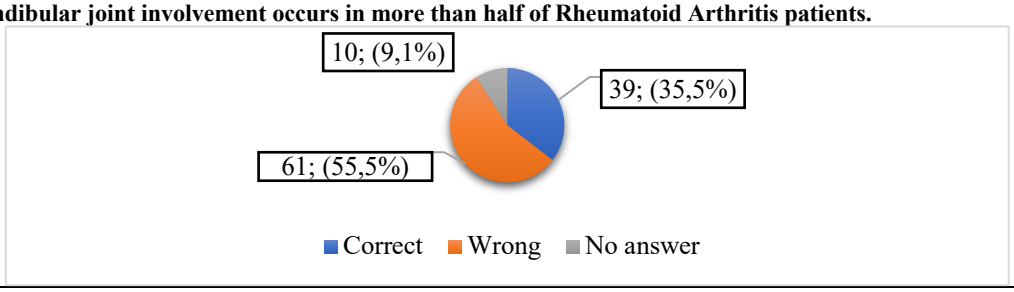
In the study, survey invitations could be sent to a total of 246 people. Within a 6-month period, 110 of them agreed to participate in the study. The mean age of the participants was 37.1± 8.6 (years). 105 (95.5%) of the participants included in the study gave the correct answer to the question whether TMJ is a synovial joint. Table 2 shows the answers given by our participants to the survey questions.

Table 2. Response results of the participants who participated in the survey study n (%)

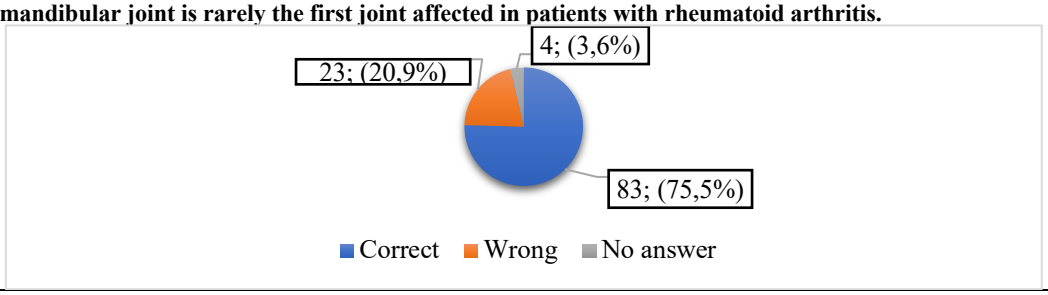
1. The temporomandibular joint is a synovial joint.



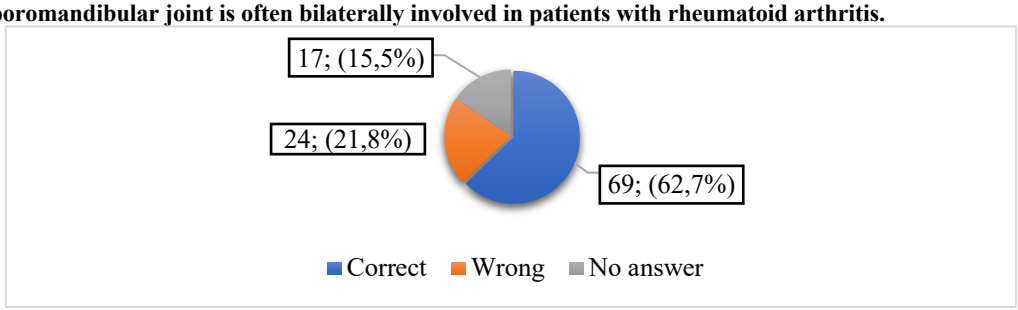
2. Temporomandibular joint involvement occurs in more than half of Rheumatoid Arthritis patients.



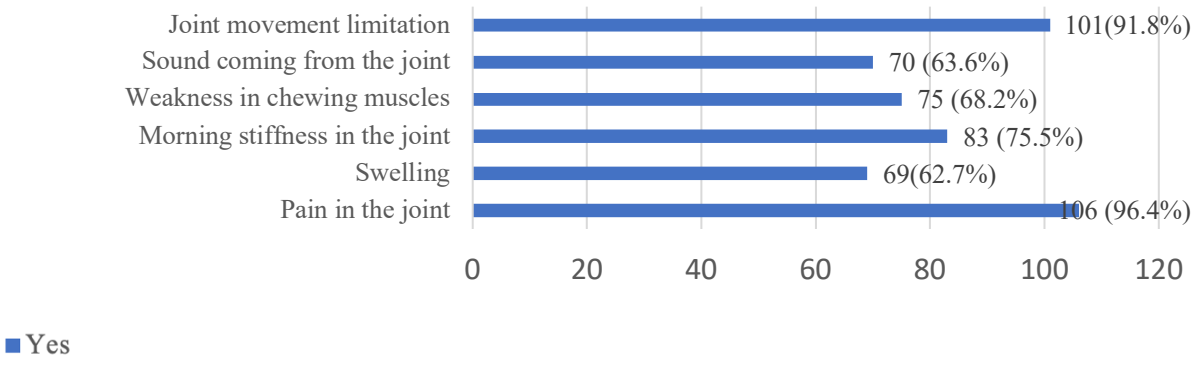
3. Temporomandibular joint is rarely the first joint affected in patients with rheumatoid arthritis.



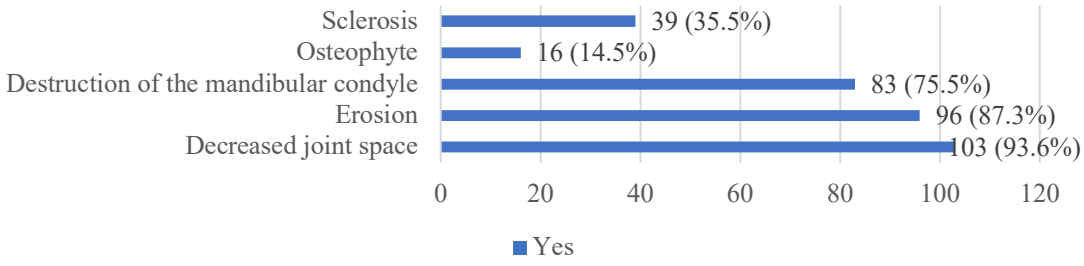
4. The temporomandibular joint is often bilaterally involved in patients with rheumatoid arthritis.



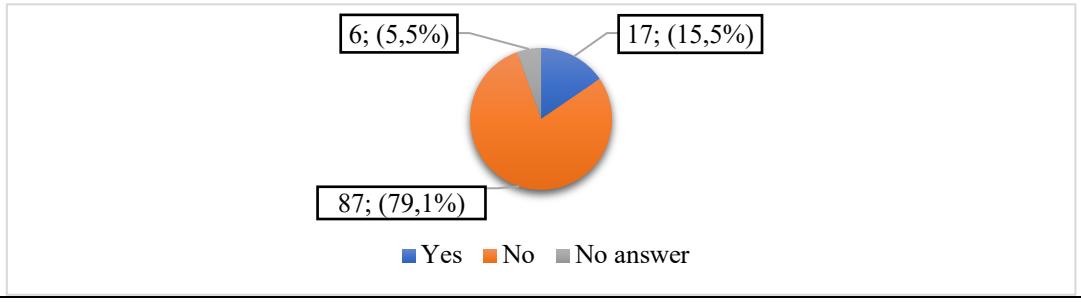
5. What are the clinical findings in temporomandibular joint involvement? (More than one option can be ticked)



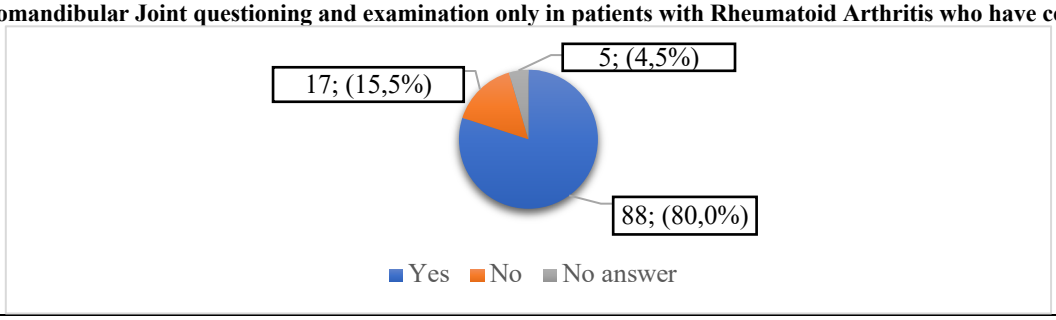
6. What are the radiological findings seen in temporomandibular joint involvement? (More than one option can be ticked)



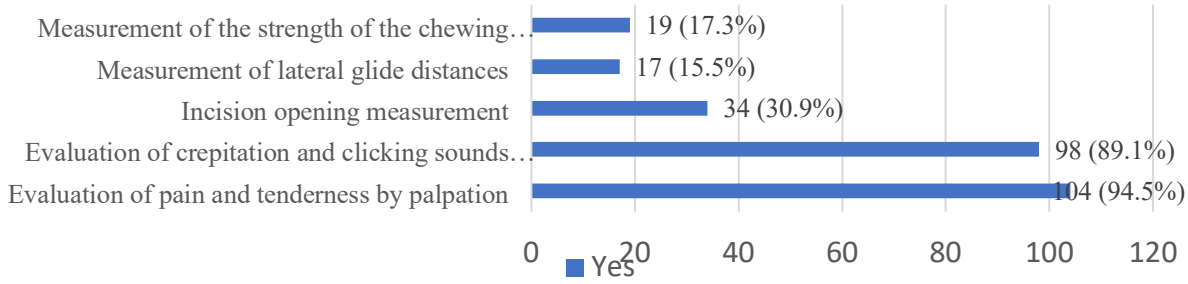
7. I do the temporomandibular joint questioning and examination in every rheumatoid arthritis patient whether there is a complaint or not.



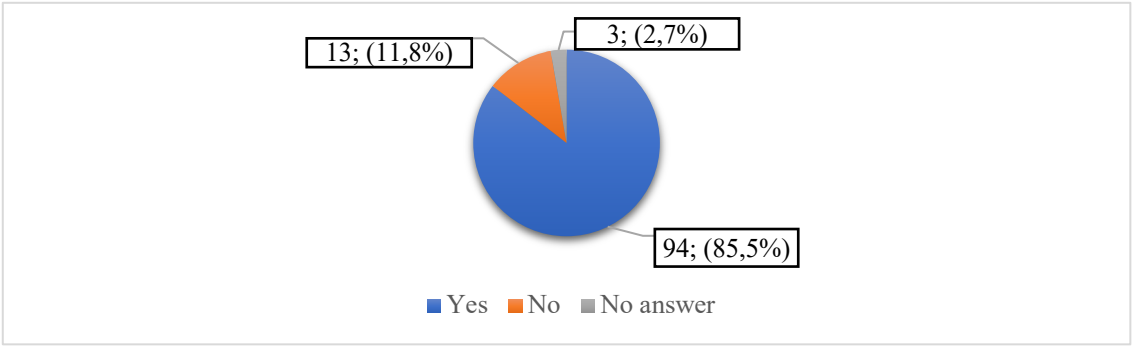
8. I do Temporomandibular Joint questioning and examination only in patients with Rheumatoid Arthritis who have complaints.



9. Which examination methods do you know exactly for Temporomandibular Joint? (More than one option can be ticked)



10. Do you think that you are more interested in other joints in rheumatoid arthritis patients and ignore the temporomandibular joint?



4. Discussion

Rheumatoid arthritis is among the most common types of inflammatory arthritis. We know very well that the disease's course with joint deformities makes people suffering from this disease worried about their future. As physicians, our duty should be to keep the quality of life of RA patients at the highest level and to prevent deformity. In this, we should know the RA, which is insidiously in front of us, and measure the disease activity correctly. TMJ is not taken into account when calculating disease activity scores such as DAS28, which we use to measure disease activity in today's outpatient practice (6). Perhaps because the disease activity of a patient with TMJ involvement but not peripheral joint involvement is seen in remission, treatment changes are not made incorrectly. When we examine the HAQ, which is also the RA health assessment score, it is very thought-provoking that while the daily loss of function caused by peripheral joint involvement is questioned in the section about eating, the inadequacies of the TMJ joint are not questioned (7). We think that physicians dealing with rheumatology should be mindful of this issue.

Temporomandibular joint: as it is known, the glenoid fossa of the temporal bone is a synovial joint consisting of 4 articulated surfaces consisting of the upper and lower surfaces of the articular disc and the mandibular condyle (8). Almost all of the physicians participating in the survey answered correctly that the TMJ joint is a synovial joint.

TMJ involvement is frequently encountered in patients with RA. In the literature, Moen et al. reported that 77% of RA patients had pain and dysfunction due to TMJ involvement (9). Again, most studies show that more than 50% of RA patients clinically show TMJ involvement (2). However, the number of participants who correctly answered the question "More than half of RA patients had TMJ involvement" in our study remained only at 35.5 percent. TMJ involvement in RA may be ignored because physicians believe it is uncommon.

According to the literature, TMJ involvement is rarely the first joint involved in the course of RA, and it is striking that it is often bilateral when TMJ involvement is present (2, 3). In our survey, more than 60% of participants correctly answered the questions 'Temporomandibular joint is seldom the first joint affected in patients with rheumatoid arthritis.' and 'Temporomandibular joint is commonly bilaterally implicated in patients with rheumatoid arthritis.'

Clinically, in TMJ pathologies due to RA, there is preauricular pain or tenderness during joint movement (10). As the causes of this pain; retrodiscal tissue compression, inflammatory changes in the joint, stretching of the joint capsule, and synovitis have been demonstrated (10). Morning stiffness, weakness in masticatory muscles, swelling in the joint and limitation of movement are also seen in TMJ joint involvement. The percentage of participants who answered these questions correctly in our study was over 60%. In other words, although our study participants ignored the TMJ involvement, they were well acquainted with the clinical findings of TMJ involvement.

The diagnosis of rheumatoid arthritis and TMJ involvement is based on the history, physical findings, and radiographic findings. Radiographic changes of TMJ include flattening of the mandibular condyle, cortical erosion, gradual reduction in joint space, deossification, condyle head deformity, and subcortical cysts (10-12). Again, in the advanced stages of the disease, a sharp and pointed condyle, osteophyte formation, lipping, shortened posterior ramus length causing premature posterior occlusion, anterior open bite and deepening of the antegonial notch can be counted among the radiographic changes (13). Since they were questioned in terms of radiological findings in TMJ involvement in RA, the majority of the participants said that they expected joint space narrowing, erosion and mandibular destruction. On the other hand, the number of physicians who expected radiological findings such as ostephitis and sclerosis as radiological findings was very low. The reason for this may be that these radiological findings (ostephitis, sclerosis) are seen in osteoarthritis joint involvement rather than inflammatory arthritis (14).

While the number of physicians who inquire about TMJ history and examine patients with RA remains at only 15%, if there is a TMJ complaint, this rate rises to 80%. From this point of view, we think that physicians ignore TMJ involvement in patients with RA who do not have TMJ complaints.

In our study, we found that the majority of the participants searched for pain and tenderness by palpating the joint, as well as looking for crepitation and clicking sound in the joint in detecting TMJ involvement. However, there are more objective tests for the evaluation of TMJ; we found that measurement of incision opening, measurement of lateral glide distance, and measurement of chewing muscle strength are not frequently known. However, objective methods may be more valuable in terms of patient follow-up.

Finally, 85% of the participants admitted that they ignored TMJ involvement in RA. We could not find any other study in the literature investigating the awareness of TMJ involvement in RA and the awareness of physical examination methods in detecting TMJ involvement. In the literature, there are only studies reporting that RA patients have low awareness of the problem related to TMJ (15).

The most important limitation of our study is that we could not reach many clinicians in our country due to the low participation in online surveys, while the strength of our study is that it is the first study investigating physicians' awareness of TMJ involvement in RA.

Our findings are significant as they reveal that physicians dealing with rheumatology ignore TMJ involvement in RA

and are not aware of the objective measurement methods that they can use when TMJ involvement occurs. We think that the examination of TMJs, which is a crucial component of our vital activities such as nutrition and speech, should be added to the standard joint examination. In addition, we think that it should be included in disease activity ratings and health assessment questionnaires.

We believe that if our study results are supported by future national and international studies, awareness of TMJ insertion will increase.

Conflict of interest

None to declare.

Acknowledgments
None to declare.

Funding
The authors received no financial support for the research and/or authorship of this article.

Authors' contributions

Concept: M.İ., İ.İ., Y.D., A.K.C., P.Ç., Design: M.İ., İ.İ., Y.D., A.K.C., P.Ç., Data Collection or Processing: M.İ., İ.İ., Y.D., A.K.C., P.Ç., Analysis or Interpretation: M.İ., İ.İ., Y.D., A.K.C., P.Ç., Literature Search: M.İ., İ.İ., Y.D., A.K.C., P.Ç., Writing: M.İ., İ.İ., Y.D., A.K.C., P.Ç.

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