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The oral health concerns of rheumatoid arthritis patients: Listening to patients

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Original Article

Abstract

BACKGROUND: There is a higher prevalence of oral health problems among people with rheumatoid arthritis (RA) than the general population. Receiving and continuing dental treatment is challenging for this patient group for many reasons. Therefore, the purpose of this study was to identify the most common oral concerns and the barriers and facilitators of access to dental health care through a qualitative evaluation.

METHODS: In this study, an interpretative/hermeneutic approach was used. Through purposive sampling, 50 RA patients (38 women and 12 men) who referred to 3 rheumatology centers in Yazd, Iran, between May and July 2021 were recruited. Sampling was continued until data saturation was reached. To determine the main oral concerns of patients, unstructured interviews and an audio recorder were used for face-to-face interviews.

RESULTS: The information extracted from the questionnaires and recorded information were classified into 4 main themes: 1) physical limitations of RA patients in chewing, swallowing, or following oral hygiene instructions; 2) pain and discomfort that RA patients reported in their mouth and teeth; 3) social and psychological limitations; and 4) barriers and facilitators of dental treatments.

CONCLUSION: Due to differences in the level of awareness and unique systemic conditions of each interviewee, they had different oral health-related concerns. It seems that a comprehensive approach is necessary to adapt oral health services to the needs of this population. We hope that our findings can help determine the priorities of oral and dental care in these patients and simplify their access to dental services.

KEYWORDS: Oral Health; Arthritis; Rheumatoid; Health Services

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Introduction

Rheumatoid arthritis (RA) is a chronic systemic autoimmune inflammatory condition that affects 5–10 adults per 1000 in industrialized countries. Globally, this disease has affected more than 1% of the world's population, and in Iran, the incidence rate of this disease is 0.37% of the total population. Delays in appropriate care lead to exacerbation of RA symptoms with a physical disability, a decrease in quality of life (QOL), and premature death.[1]

RA is characterized by synovitis, chronic pain, and joint destruction. Temporomandibular joint (TMJ) disorders, secondary Sjogren's syndrome, and periodontal and dental disease are the main oral manifestations of this disease. In the long run, it causes disorders in organs such as the heart and lungs, and the central nervous system.[2,3]

People with RA are more susceptible to a higher prevalence and severity of periodontal diseases and have a higher rate of tooth loss than the general population. Dry mouth has

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also been raised as a common complaint among these patients. Understanding the potential pathways linking RA and periodontal disease is critical to improving oral health and arthritis treatment outcomes. Konig et al. have shown that bacteremia caused by periodontal pathogens can be a factor in the development of RA.[7] Indeed, the immune responses to oral bacteria have been proposed as a mechanism that links these two chronic inflammatory conditions.[4-8]

The study by Arvikar et al. showed that even RA patients who have common dental care often have inflammation in the oral environment. Previous studies also suggest that gingival tissues are a common and often unrecognized target of extra-articular inflammation in RA.[9,10]

RA patients face significant challenges in maintaining oral health such as their possible physical inability to follow oral hygiene instructions, which may lead to a noticeable reduction in oral health-related QOL.[11]

The adverse consequences of RA are far greater than these symptomatic and functional limitations. The emotional and social well-being of these individuals is also negatively affected.[12] Major depression is common in about 13-42% of RA patients, which is double to four times higher than the general population, and as we know depression is a predisposing factor for poor oral health through the modification of the immune system function and increased inflammatory cytokines.[12,13]

Thus, in addition to the direct effect of RA on the QOL of patients, it is also important to pay attention to the indirect effect of secondary complications related to RA and the side effects of long-term use of various medications.[14,15]

To the best of the authors' knowledge, this study is unique in Iran in terms of addressing the oral concerns of patients with RA and the problems they face in accessing dental treatments. It is a fact that the dentist's role in the standard treatment protocol of this group of patients is often neglected.

Considering the undeniable shadow of RA on the general QOL and oral health of patients, the purpose of this study was to investigate the oral concerns of this population and to determine the barriers and facilitators to their accessing dental services. To achieve this goal, an unstructured questionnaire was used as a guide for an intimate informal interview to hear the concerns of patients with RA in the field of oral and dental health.

Methods

Patient recruitment: In this research, an interpretative/hermeneutic approach was implemented. In addition to description, this approach also considers the interpretation and perception of human experiences. This qualitative study was conducted from the beginning of May to the end of July 2021. The study population included patients with RA, based on the Disease Activity Score-28 (DAS-28) index, referred to 3 health centers (Baqaipour, Shahid Rahnemoun, and Khatam Al-Anbia clinics) in Yazd, Iran.

The study inclusion criteria were age of over 20 years with the ability to communicate, having at least 15 permanent teeth, confirmation of the diagnosis of RA by our fellow rheumatologist, a history of at least 1 year from the definite diagnosis of RA, and providing informed consent for participation in the interview. The exclusion criteria included less than 15 permanent teeth or dentures, or newly diagnosed RA.

Interview design: To determine the main oral complaints of patients, an unstructured questionnaire and an audio recorder were used to collect data. Each interview was conducted face-to-face for approximately 15-25 minutes. The interview was conducted by a post-graduate student in the waiting rooms of 3 selected clinics.

The questions were on 4 general topics:

1) physical limitations of RA patients in chewing, swallowing, or following oral hygiene instructions; 2) pain and discomfort that RA patients reported in their mouth and teeth; 3) social and psychological limitations; 4) Barriers and facilitators of dental treatments. At the end of the interview, the patients were asked to mention any additional points regarding their oral health to create openness (Table 1). The recorded interviews (audiotapes) were listened to repeatedly to extract surface and latent meaning via the thematic analysis method.

Ethical consideration: This study was approved by the regional ethics committee (IR.SSU.REC.1400.070). Patients were notified of any possible problems observed during the pre-study examination for further dental follow-ups or treatments.

Data analysis: Through purposive sampling, 63 patients were selected, and sampling was continued until data saturation was attained. Of the selected patients, 13 were excluded from the study due to reasons such as having less than 15 permanent teeth or a history of RA of less than 1 year. Finally, the questionnaire and recorded data of 50 patients were reviewed. This study had a flexible qualitative and thematic design that was conducted in several stages until complete data analysis.[16]

First, the recorded sounds from each patient were carefully reviewed. The text of the interviews was transcribed, and then, reviewed several times, and sentences and phrases related to the main topics were selected based on a selective approach. The stages of interpretation were considered as 1-separating thematic expressions, 2-converting thematic expressions into primary codes, 3-converting primary codes into subthemes, 4-converting subthemes into major themes, and 5- separating the main themes (Table 2).

Each patient was identified by her/his file number. For example, the patient with file number 11 was identified as P11.

Results

Of the 50 patients recruited in this study, 38 were women and 12 were men with the age range of 32-69 years (Table 3).

Table 1. The major themes and subthemes

Major themes	Subthemes	Sample questions
Eating is no longer enjoyable	Change in amount and type of food	Have you changed the amount and type of food you have due to dental problems?
	Eating without pleasure	Have you had difficulty biting and chewing on foods such as meat or hard apples? Do you swallow food easily? How well were you able to eat something?
Oral pain and discomfort	Controlling toothache with painkillers	Have you used medicine to relieve pain and discomfort in the mouth and teeth?
	Oral and dental sensitivity	Are your teeth or gums sensitive to cold, heat, or sweets?
The mental and social burden on patients	Difficulty in communication	Do your natural teeth allow you to speak the way you want?
	Dissatisfaction with dental appearance	Have you limited contact with others because of the condition of your teeth?
	Disturbing social behaviors	Are you satisfied with the appearance of your teeth and gums? Are you worried about your gum and tooth problems? Have dental and gum problems made you feel embarrassed?
Barriers and facilitators for dental treatments	Difficulty in commuting	What is your experience of going to the dental clinics?
	Difficulty in access to all types of dental health services	What kind of dental health service should be presented to you in the best possible way?
	Bad memories from past dental visits	What are the barriers and facilitators for meeting your dental practitioner?
Others	--	What would you say is the remaining important issue you would like to share about arthritis and oral concerns?

Table 2. Participants' experience in achieving dental health care

Major themes	Subthemes	Primary codes	Examples: Thematic expressions
Eating is no longer enjoyable	Change in amount and type of food	Difficulty in eating	I put a bigger glass of water for myself at lunch because I have to drink water with every bite of food.
	Eating without pleasure		I have to prepare two types of food, one for myself which is softer and regular food for the other family members.
		Distraction	When I am eating, I think about which side of my mouth to eat with and which kind of food I should choose to eat and I do not enjoy eating.
Oral pain and discomfort	Controlling toothache with painkillers	Poor economy	I am constantly taking painkillers for my toothache as I cannot afford the high cost of endodontic treatments.
	Oral and dental sensitivity	Discomfort and anxiety	A patient experienced bleeding gums while biting hard foods such as apples.
			I have severe pain in my upper teeth when drinking cold liquids, so I have been avoiding cold water for a long time.
			Mobility of anterior mandibular teeth during chewing caused pain and discomfort in a patient.
The mental and social burden on patients	Difficulty in communication	Improper pronunciation	I lost my mandibular anterior teeth and had difficulty pronouncing some letters due to this way of verbal expression. I establish the necessary social communication only to the extent necessary.
	Dissatisfaction with dental appearance	Feeling embarrassment	I lost my posterior teeth and have difficulty eating in public, at a party or restaurant.
	Disturbing social behaviors		Because of have not replaced the posterior teeth at all, I have digestive problems due to swallowing large pieces of food and these digestive problems cause involuntary burping in public.
Barriers and facilitators for dental treatments	Difficulty in commuting	Transport	I use a wheelchair, and the nearest dental clinic to our residence is located on the second floor of a building that does not have an elevator.
	Difficulty in access to all types of dental health services	Lack of governmental medical services	I was a bus driver who had to change my job and work part-time since the onset of RA symptoms. With reduced income, high living costs, and side effects of the illness, I cannot afford to take care of my teeth in private clinics.
	Bad memories from past dental visits	Lack of health insurance coverage	I went to a government clinic for my toothache a few days ago, but the only services that were covered by their insurance were dental visits and tooth extractions, and I had my tooth pulled because of the high cost of restorative and endodontic treatments.
		Complications after dental treatment	I had developed bone necrosis after tooth extraction; due to taking methotrexate, my wound healing had taken a long time.
		Intolerance of dental treatment procedure	I could not sit in the dental unit for long periods and preferred to have my dental treatments performed under general anesthesia because of my lower pain threshold due to my illness.
		Not receiving sufficient information	I am losing teeth due to a lack of awareness of the connection between rheumatoid disease and gum disease. If I had been informed earlier by the rheumatologist, I would have taken more care.

Table 3. Characteristics of participants

Variable	Value
Gender	
Female	38
Male	12
The age range at the interview time	32-69 years
The mean duration of disease after diagnosis	2.5 years
Smoking	
Yes	31
No	19
Education level	
Illiterate	13
Elementary to High school	26
University education including postgraduate degree	11

The points mentioned by the patients were noted by our post-graduate students of periodontics in the same prepared forms.

Through thematic analysis and based on a questionnaire, we identified 4 overall themes.

Theme 1: Eating is no longer enjoyable

Most patients change their diet from hard to soft food, which is easier to swallow and requires less chewing time. They refuse to eat hard foods such as meat, apples, candies, and crunchy rice. Among the reasons stated were temporomandibular joint pain during chewing and lack of saliva for swallowing. Although most of them reported an association between dry mouth incidence and their received medications, few were aware of the biological association between RA and oral health.

A patient (P3) stated that he had a big glass of water by his side at lunch because he had to drink water with every bite of food.

A female patient (P11) said: "Most of the time, I have to prepare two types of food, one for myself, which is softer, and regular food for the other family members."

Another patient (P21) stated: "While eating, I think about which side of my mouth to eat with and which kind of food I should choose to eat, and I do not enjoy eating.

Theme 2: Oral pain and discomfort

Almost half of the participants ignored their toothaches and tooth sensitivities, and did not refer to the dentist until the pain became unbearable and could not be controlled with analgesics. Their referrals to the dentist were usually limited to tooth extraction. As previously mentioned, due to numerous complications they were faced with, the presence or absence of teeth did not matter to some patients. However, patients who had a good level of education and acceptable social status had annual dental checkups, and had more remaining teeth.

In this regard a patient (P17) said: "I am constantly taking painkillers for my toothache as I cannot afford the high cost of endodontic treatments." Another patient (P46) complained of bleeding gums while biting hard foods such as apples. One of the patients (P23) reported radiant severe pain in her upper jaw teeth while drinking cold liquids, which is why she had been avoiding cold water for a long time. Another patient (P34) complained of pain and discomfort due to mobility of anterior mandibular teeth during chewing.

Theme 3: Mental and social burden on patients

Patients with a poor social and economic status had the most problems socializing with others. A patient (P21) who had lost his mandibular anterior teeth had difficulty pronouncing some letters and due to his way of verbal expression, he only established necessary social communication only to the extent necessary. A lady (P39) who had lost her posterior teeth had difficulty eating in public such as at a party or restaurant. Another patient (P40), who had not tried to replace the posterior teeth at all, had digestive problems due to swallowing large pieces of food, and these digestive problems cause involuntary burping in public.

Among the interviewees, patients, who were in a better socioeconomic status and had controlled RA disease, thought about their oral health problems with less additional concerns and even thought about making their smiles more beautiful.

Theme 4: Barriers and facilitators for dental treatments

A patient (P9) said that she had gone to a government clinic due to toothache a few days ago, but the only services that were covered by her insurance were dental visits and tooth extractions, and she had her teeth removed because of the high cost of restorative and endodontic treatments.

A patient (P27) began the conversation as follows: "I was a bus driver, but I have had to change my job and work part-time since the onset of RA symptoms. For a long time, I could not sit behind the wheel of the bus and it was difficult for me to control it. With reduced income, high living costs, and the side effects of the illness, I cannot afford to take care of my teeth."

Another patient (P35) said that she had developed bone necrosis after tooth extraction due to delayed wound healing as a result of methotrexate intake.

A 65-year-old male patient (P37) with a 20-year history of RA had used only traditional medicine treatments for toothache until now and had refused dental treatments. According to his statement, he was forced to accept chemical treatments for RA only because of many serious systemic problems.

A wheelchair user (P4) described the difficulty of accessing well-equipped dental clinics due to improper urban planning structures in most areas of Yazd. The nearest dental clinic to his home with only basic treatment facilities was located on the second floor of a building that did not have an elevator.

Another patient (P8) stated: "I cannot sit in the dental unit for long periods and prefer to have my dental treatments performed under general anesthesia because of my lower pain threshold due to my illness."

A 40-year-old woman (P50) who had been suffering from the disease for 15 years and had lost her anterior teeth, said that if her rheumatologist had told her about the link between RA and periodontal diseases, she would have checked her teeth sooner and taken the necessary precautions. She mentioned her lack of knowledge about the oral consequences of arthritis as the reason for not pursuing dental treatments.

A few patients also avoided going to dental centers due to bad dental memories because of the unfriendly behavior of dental staff. Two patients pointed to the refusal of some dentists to admit patients with RA due to insufficient information about the treatment considerations or other personal reasons. For example, dentists were unaware of how uncomfortable patients felt when the neck was in a backward position on the dental unit, as RA may cause neck instability.[17] Prolonged dental sessions are not suitable for these patients due to joint tenderness and this is sometimes overlooked by dentists.[18] Other patients had similar stories.

Discussion

The present study was conducted with the aim to examine patients' experiences and priorities that determine their quality of access to oral health services.

During the interviews, we did our best to create a safe and comfortable environment for patients to express themselves freely and describe their perceptions of the impact of RA's subsequent oral health problems on their life routines.

Oral health is considered to be an important medical concern.[19] In our brief investigation, some participants complained about their physical limitations which interfered with maintaining oral health. According to our results, RA affects patients' personal and professional relationships and changes their daily routine and QOL. Most of them have to change their working time from full-time to part-time or retire early, adapt their lifestyle, and rely on assistance from external sources (family, friends, or social workers), which

increases their sense of vulnerability, which, in turn, increases the psychological burden of their condition.[15,20]

Bhatia et al. found that decreased social support can affect emotional adaptation to the disease and increase physical disability, distress, and the prevalence of depression.[21] These findings were in line with the results of our study. Patients with RA who have strong social support structures have less severe symptoms of psychological disorders than those who do not.[21]

Margaretten et al. also reported similar results regarding the physical and mental limitations caused by RA, which can affect the body and mind of individuals and increase the prevalence of depression by 13-42%.[13] Therefore, RA and depression have negative health consequences, including poor adherence to medication and decreased seeking of health services. They also found that the prevalence of depression is higher in RA patients with lower socioeconomic status.[13]

Our findings show that although most RA patients did not have good oral health, due to unfavorable social and financial conditions, they had no choice but to endure decayed teeth or multiple edentulous areas because of financial limitations. In the study by Nosratzehi et al.[22], financial problem was not mentioned as a main barrier, and the progress of RA itself and the aging process were mentioned as the main causes of lowering the QOL related to oral health in these patients. Some other studies[23,24] have also reported the problems of patients mainly around the physical limitations that arthritis causes in complying with oral health care not the financial problems in accessing dental services. This difference may be probably due to different social classes of selected populations in these studies.

Blaizot et al. reported that most participants were concerned about their oral health.[25] This concern and self-awareness about oral problems and dissatisfaction with the appearance of teeth were more pronounced in those who were more physically disabled.[25] Therefore, to improve the QOL related to oral health in RA patients and increase their self-esteem, more care should be taken in the prevention of dental diseases.[25] To achieve this, better collaboration among RA patients, rheumatologists, and dentists is needed. However, in our study, many patients were not seriously concerned about their dental appearance and their self-confidence decrease, which may be due to differences in the socio-economic conditions of the participants in the two studies. The most common dental problems reported by our participants were their dental sensitivity to cold drinks and sweets, but they did not seek dental care due to cultural, geographical, social, and economic factors.

According to our results, most public dental clinics in Yazd do not have enough facilities to provide dental services, especially for patients in wheelchairs. Therefore, there is a need for an insurance-covered dental hospital with sufficient facilities and equipment and professional staff for dental treatment of patients with systemic problems, including RA, in cities other than the capital. The findings of Serban et al. were in line with that of our study; they stated that access to oral health services is a complex problem that RA patients face due to their medical conditions.[20]

Due to the low awareness of our participants about the relationship between the severity of oral disease and the consequences of RA, it is important that rheumatologists, in addition to informing patients about the biological relationship between oral disease and RA, encourage them to perform oral health care as a part of their RA management. Moreover, some previous studies have reported the positive effect of periodontal treatments on reducing the clinical signs of RA.[26]

Because of the pain and physical limitations in these patients, mechanical oral hygiene

practices such as using toothbrushes and flossing are difficult. Thus, it is better to recommend chemical plaque control methods such as mouthwash to these patients.[23] Protudjer et al. found that people with RA experience significant challenges in oral health care due to their arthritis. Adapting oral health recommendations to the needs of RA patients and providing professional oral care to RA patients is one of the priorities of patients that requires coordination between rheumatologists and dentists.[24]

Watt and Serban reported an increase in the prevalence of multimorbidity and that it is directly related to aging and social and economic status. Multimorbidity has a major impact on QOL and mortality, and has significant financial costs for the social health system.[14]

Although many studies have shown an association between specific oral diseases and a wide range of other health conditions, the mechanism of these interrelationships is not well-known. Therefore, a fundamental change in the training of oral health professionals and the provision of dental care is needed, which requires a more comprehensive approach, and basic reforms in the health system structures, and the way of providing and financing dental services.[27]

Although cultural, geographical, social, and economic factors can affect access to professional dental care, they have not been fully investigated in this study. Therefore, the identified challenges include financial barriers and educational levels, and since almost half of the participants were smokers, counseling on smoking cessation seems necessary.[28]

The present study had some limitations. Due to financial problems, most of the patients had extracted the tooth due to toothache, so it was difficult to find RA patients with at least 15 permanent teeth. Moreover, since these interviews were conducted during the Corona pandemic, some patients refused to be interviewed due to the fear of virus transmission.

Investigating the oral concerns of patients with RA and determining the barriers and facilitators of their access to dental services, can be considered as a step towards making a positive change in QOL of these patients.

Conclusion

It can be concluded that since the present-day routine treatments for patients with RA often neglect their oral health, a holistic approach with the collaboration of rheumatologists and dentists is needed.

Conflict of Interests

Authors have no conflict of interests.

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