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# Patients' reasons for consulting a general practitioner at the time of having dental problems: a qualitative study

Raziyehsadat Rezvaninejad<sup>1</sup>, Maryam Alsadat Hashemipour<sup>2,3\*</sup>, Mina Mirzaei<sup>2,3</sup> and Haleh Rajaeinia<sup>4</sup>

## Abstract

**Introduction** Many patients consult general practitioners instead of dentists for their oral and dental problems every year. This study aims to find the reasons why patients consult general practitioners when they have dental problems.

**Methods** The sample consisted of patients visiting dentists and general practitioners in Kerman, Iran. A thematic interview guide, semi-structured questions, and a mind map that allowed for structured and open-ended questions were prepared and used for the interviews. All interviews were recorded and transcribed verbatim by a final-year student. Data collection, transcription, and analysis were conducted simultaneously to allow for new topics to be raised and theoretical saturation to be reached. When researchers determined that sufficient information was available for analysis and understanding of patient opinions and beliefs, the interview process was stopped. As all audio conversations were recorded with the participant's permission, no note-taking was done during the interviews, which allowed for greater focus on the participants' conversation. The obtained data was analyzed using the content analysis.

**Results** A total of 52 patients were included in this study. The codes related to patients participating in this research, along with the number of respondent groups related to each code were as follows: patient's perceptions of general practitioner (GP) and dental practitioner's scope of work [21], flawed dental system (34), dental anxiety [28], financial considerations [25], and more accessibility to GPs (31). Dental abscesses and dental pain were reported as the most common reasons for consulting GPs.

**Conclusion** Most participants agreed that dental problems are more effectively treated by dentists. Reasons for visiting a general practitioner included lack of a specific dentist, dissatisfaction with dental treatments, lack of a dentist nearby, absence of emergency dental care, and familiarity with a physician. The most common reasons for visits were toothache and dental abscesses. Patients also sought treatment for TMJ pain, referred nerve pain, wisdom tooth pain, numbness and tingling in the jaw, gum inflammation, oral lesions, and ulcers. Furthermore, other factors such as opening hours, appointment systems and waiting time can also affect patient's consult behaviors regarding dental problems.

**Keywords** Consultation, Dentist, Dental problems, Doctor, Qualitative study, Patient

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## Introduction

Although a large number of patients consult a dentist when they have dental problems, other patients consult a general practitioner. Nearly 380,000 visits are made to general practitioners per year due to dental problems in the United Kingdom [1]. The overall rate of consultations related to dental issues with general practitioners in the UK has decreased between 2008 and 2013. However, reported statistics vary widely. For example, in some practices, as many as 8.29 dental consultations per 1,000 patients have been reported [2, 3].

This may be due to issues with access to dental services, the patient's perception of the scope of practice of physicians and dentists, poorly differentiated pain, the need for antibiotics, or financial concerns about the cost of dental treatment [2, 3]. Evidence-based guidelines for the management of acute dental conditions recommend that patients (except those with critical conditions) be referred to dentists who have the skills and resources necessary to stabilize conditions and prevent the worsening of patient status. In many cases, acute dental conditions require dental surgical treatments such as extractions or root canal treatments. It seems unlikely that general practitioners have the necessary skills or tools to diagnose and treat such cases, which can justify the high rate of prescribing antibiotics for dental problems. Since in most cases prescribing antibiotics for acute dental problems rarely leads to a definitive cure, the use of antibiotics in these consultations has become a concern. There are also direct, indirect, and opportunity costs associated with dental consultations those are imposed on general practitioners [4].

Most dental problems cannot be managed entirely by physicians [4], but unfortunately, general practitioners who lack the knowledge, specialized skills, and necessary facilities to perform appropriate treatment still visit such patients. Systemic antibiotic prescribing for those consulting general practitioners regarding dental problems is more likely than those who visit dentists. Antibiotics have no clinical benefit for many acute dental diseases [5], and their indiscriminate use could lead to the emergence of antibiotic-resistant bacterial strains and harmful side effects [6].

The use of general practitioners for dental problems is usually ineffective and insufficient, making it a waste of resources. Patients rarely receive the best care for their dental condition, which can lead to concern about the worsening of their condition due to untreated dental problems and increase the emergence of antibiotic-resistant bacterial strains from improper antibiotic prescribing. The reasons for patients consulting with general practitioners regarding dental problems are not only influenced by the symptoms of the disease and the difference between dentist and general practitioner

consultations in terms of access and scheduling convenience but also by background factors such as previous experiences with dental visits and patients' perceptions of the scope of practice of physicians [1].

Evidence has been discussed for decades on the relationship between oral and dental health and systemic diseases, especially the interactions between periodontitis or remaining teeth and chronic and non-communicable diseases (diabetes, coronary heart disease, atherosclerosis, and dementia) [5–7]. Collaborating between general practitioners and dentists is crucial for providing high-quality health services to patients. Recently, it was reported that the convenience of scheduling a visit and its availability can be effective in choosing a general practitioner for dental symptoms. In a study of patients referred to the maxillofacial surgery department in the UK, 26% of patients referred by their treating physician believed that the cost of visiting a dentist instead of a physician was effective in choosing a treating physician for dental and jaw problems. Although the findings of this study may not be generalized to a larger population of patients with dental problems who visit general practitioners, only a small proportion of these patients are referred to another physician [8–11]. Therefore, this study aims to find out the reasons why patients consult with a general practitioner for dental or gum problems.

## Method

The sample population was comprised of patients who went to dentists and general practitioners in Kerman. In this comprehensive study, both individual and group interviews were conducted with several patients in Kerman. Focus groups and individual interviews are both excellent means of collecting data and information to support monitoring and evaluation work. Both collect qualitative information directly from participants and should provide detailed and rich data. A Focus Group is a structured discussion group, which aims to gather critical information about beneficiaries. A focus group is a small, but representative, sample of people who are asked about their opinions on a particular topic. The responses are then used to generate insights and understanding about that topic. The Focus groups can be an effective way to gather information because they provide a forum for open discussion and allow for the exploration of different viewpoints. They also offer the opportunity to build rapport and relationships with participants [11, 12].

Before the interviews, verbal consent was obtained from the patients, and those who were willing to participate were included in the study. A purposive sample with maximum diversity was used to ensure diversity in occupation, gender, and age. All participants volunteered and participated without compensation, and were informed

of their right to withdraw from the study without giving a reason until the publication of the study.

Semi-structured individual interviews were conducted in locations requested by the patients. The interviews were conducted by an experienced interviewer (a final-year student who had been trained by the oral medicine professor). A thematic interview guide, semi-structured questions, and a mind map that allowed for structured and open-ended questions were prepared and used for the interviews [11, 12].

All interviews were recorded and transcribed verbatim by a final-year student (female). After each interview, field notes were reviewed and reminders were documented. Field notes consisting the context of the conversation, how the information was presented by the patients, the interview atmosphere, and reactions during the interview. Transcripts were compared with recordings and adjusted if necessary [11, 12].

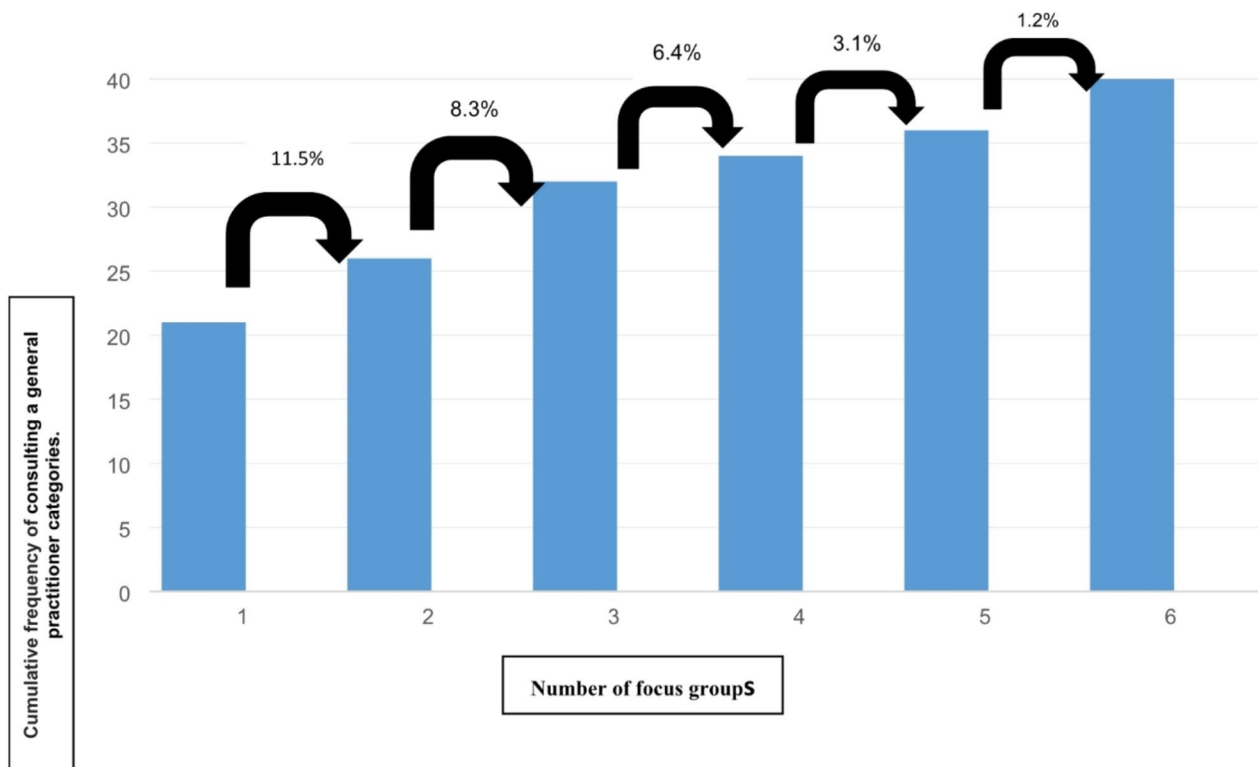
The timing and schedule for participants were not uniform, and because each participant may have had different ethical and behavioral characteristics, some conversations may not have required further questioning during the interview, while others may have prompted more questions from the interviewer. The interviews were conducted informally to allow for more detailed and

nuanced opinions and discussions by the participants [11, 12].

Data collection, transcription, and analysis were conducted simultaneously to allow for new topics to be raised and theoretical saturation to be reached. Theoretical saturation refers to when no new interviews add additional information required for a specific topic. When researchers determined that sufficient information was available for analysis and understanding of patient opinions and beliefs, the interview process was stopped [11, 12].

Immediately after the first interview, individuals' opinions were reviewed and coded separately by a researcher and continued until data saturation was reached (Fig. 1). Additionally, to increase the scientific accuracy and validity of the study, the codes obtained from each interview were given back to the participants to ensure that the researchers' interpretation of their opinions was accurate.

Furthermore, individuals were allowed to fully express their opinions, experiences, and perspectives in this area, and their experiences and attitudes were evaluated (face-to-face). As all audio conversations were recorded with the participant's permission, no note-taking was done during the interviews, which allowed for greater focus on the participants' conversation [11, 12].



**Fig. 1** Saturation of data was reached after conducting six focus groups

Also, the following methods were used to minimize bias: start with building a diverse shortlist, standardize our interview process, make records of the interviews, involve multiple people in the interview process, and acknowledge bias in virtual interviews.

Data was analyzed using content analysis, and the analyzed data was classified and the number of respondents for each category was determined.

**Result**

This study included 52 patients, all of whom participated in focus group interviews. There were 38 female and 14 male patients, with a mean age of  $27.32 \pm 1.4$  years. All interviews were conducted in a private space and lasted between 20 and 30 min (Mean  $\pm$  SD =  $24.12 \pm 4.78$ ). Also, there was no repetition of interviews. Table 1.

The codes related to participating patients in this study, along with the number of respondent groups for each code, was as follows:

**Patients**

- Lack of understanding of the scope of work of physicians (21 codes).
- Problems in the patient admission system in dentistry (34 codes).
- Anxiety and fear of dentistry (28 codes).
- Expensive dental services and inability to pay for dental expenses (25 codes).
- Easier access to physicians (31 codes).
- Dissatisfaction with previous dental care (17 codes).
- Willingness and ability to pay for dental care (21 codes).

**Patients’ understanding of their symptoms and the scope of medical practice**

A great number of participants (39 individuals) agreed that dental problems are more effectively treated by dentists. However, some (13 individuals) had doubts about who was the most appropriate person to consult for gum or other oral problems. For example, some of the patients

went to ear, nose, and throat specialists, surgery, or even cosmetic dentistry for this purpose. Some participants (12 individuals) expressed a border between the situations treated by general practitioners and those requiring a dentist. Additionally, some (15 individuals) believed that general practitioners should treat oral problems such as jaw pain or gum sores, while dentists focus on teeth. In this regard, some patients reported reasons such as unusual pain or symptoms that did not match dental problems to justify their choice.

Some patients stated that general practitioners can easily treat dental problems caused by the infection. Additionally, a few participants were unaware that their condition was dental-related until they consulted a general practitioner.

**Patients’ statements**

**Patient 11** “I didn’t have any toothache at all. My problem started with facial swelling. Then I had swelling under my jaw. I should see a general practitioner.”

**Patient 8** “One of my relatives was a physician. I explained my problem over the phone and the infection was resolved with medication.”

**Problems in the dental system**

Some patients (34 individuals) visited a general practitioner for reasons such as not having a specific dentist, dissatisfaction with dental treatments, not having a dentist near their place of residence, no emergency dental care, and familiarity with general practitioners.

Waiting in line for a dental appointment was a common reason for visiting a general practitioner. Among participants who were unable to access a dentist, only a few attempted to go to emergency dental care. From the patients’ point of view, the timing of appointments with general practitioners was much wider than that of dentists. For a patient who has their own business, being able to access a dentist only during working hours means

**Table 1** Demographic characteristics of participating in the study

Characteristics	Male		Female		Total		
	No	%	No	%	No	%	
Sex	14	27	38	73	52	100	
Age	Min	26	22		22		
	Max	29	26		29		
Mean age	28.20 $\pm$ 1.69		24.41 $\pm$ 1.11		27.32 $\pm$ 1.4		
Education	Diploma $\geq$	6	46.2	16	42.1	22	53
	Diploma $<$	8	53.8	22	57.9	42.3	57.7
Job	Employed	10	71.4	27	71.1	37	71.2
	No employed	4	28.6	11	28.9	15	28.8
Interviews time	Min	25	20		20		
	Max	30	30		30		
Mean interviews time	25.23 $\pm$ 1.51		23.09 $\pm$ 8.05		24.12 $\pm$ 4.78		

incurring financial losses. Additionally, another reason for visiting a general practitioner was the proximity and stronger relationship between patients and their general practitioner.

#### Patients' statements

**Patient 23** "Emergency dental care is not near our place of residence. Besides, students usually work in emergencies. At least there is a physician in clinics."

**Patient 15** "I tried several times to schedule an appointment with a dentist, but they told that it takes several days to get an appointment with a dentist. So, I decided to see a general practitioner."

#### Dental anxiety

More than half of the patients (28 individuals) reported fear of dentistry or unpleasant experiences from previous dental treatments. This issue has contributed to non-participation in regular dental care over many years. In five cases, fear of dentistry was the main reason for patients to visit a general practitioner instead of a dentist. Some patients reported not having access to their dentist or not being given an appointment by their dentist as reasons for fear of visiting other dentists and visiting general practitioners instead.

#### Patients' statements

**Patient 34** "Instead of enduring dental stress, a toothache can be relieved with painkillers and antibiotics."

#### Patient dissatisfaction with previous dental treatments

Patient dissatisfaction with prior dental care was notably evident in the patients' statements, revealing a sequence of events that led them to seek treatment from a general practitioner. It seems that experiences in the first few dental visits are crucial, and dissatisfaction during these meetings more often leads to a reluctance to return for further treatments. Failures in dental treatments, unsightly dental restorations, and post-surgical complications all contribute to this feeling. Undertaking unnecessary treatments, the lack of a clear treatment plan, and prolonged waiting times despite severe dental pain were also the other reasons for consulting a general practitioner.

Other reasons included missing appointments or changing addresses, which made these individuals feel abandoned by their previously trusted dentists and unsure about where to seek dental care.

#### Inability to Afford Dental expenses

The inability to afford dental expenses was a significant reason for patients to consult a general practitioner. The extent of patients' demand for treatment may

be influenced by their values and willingness to pay for dental care. Some patients reported that they did not any visit a dentist due to unpaid bills from previous treatments and, therefore, consulted a general practitioner.

#### Patient statements

**Patient 29** "If I have a dental problem at the end of the month, I always consult a general practitioner because I can't afford the cost."

**Patient 6** "If I visit a dentist, I have to pay at least half the cost, and I don't have a definite plan for dental maintenance. That's why I turned to a general practitioner so I can decide later."

**Patient 41** "I don't have the necessary funds for dental treatments."

#### Discussion

This study verifies and examines the reasons for patients consult general practitioners when experiencing dental problems. The obtained findings reveal that lack of individual understanding of the scope of medical professionals, issues within the dental care system, fear and anxiety about dentistry, inability to afford dental expenses, easier access to physicians, patients' previous experiences with dental care, and dissatisfaction with prior treatments are among the reasons for these consultations.

A study conducted in the United Kingdom revealed that between 30 and 48 patients with dental problems consult regular general practitioners out of 7,000 registered patients annually [3]. In Australia, general practitioners manage and control oral problems in approximately 19.1 out of 100 individuals [3].

A research work by Verma et al. (67) revealed that 94% of patients with dental issues visited the emergency department of Royal Hobart Hospital, which is similar to statistics reported in other hospital emergency departments (1.8-3%) [8, 9].

The findings by Cope et al. [3] are similar to another study that shows that although the presence of patients with dental issues in general practitioner offices is relatively low, they receive various treatments [1]. Consultations and the need for dental problem treatment may be less frequent than other infections, but it still poses a dilemma for some general practitioners [1, 3].

Dental problems sometimes manifest with atypical features such as acute sinusitis [10] or orbital and auricular symptoms [11]. Recent research has recognized referred pains or pains that are difficult to distinguish as one of the reasons why patients consult general practitioners instead of dentists during dental problems [12]. However, it is currently not possible to estimate the ratio of patients who are influenced by misconceptions about

their condition compared to those who are aware that their problem is related to their teeth or gums [13].

According to the study by Cope et al. [14], some patients believe that physicians receive more extensive training for managing facial and jaw problems than dentists. This perspective may be more common, especially in individuals who consult general practitioners with jaw or dental problems. This aligns with the findings of a study conducted in the United States, where 21% of participants who consulted a physician for dental pain believed that the physician could treat them [15].

In the study conducted by Cope et al. [12], the choice of oral health care provider for dental problems was influenced by patient characteristics, such as their understanding of the scope of practice and their willingness and ability to pay for dental care, as well as the characteristics of the healthcare providers. This study is in line with Levesque et al. [16], who proposed a framework in which access to healthcare is the result of dynamic interaction between the healthcare system and the population they serve. One of the main reasons participants without a specific dentist chose to consult a general practitioner was the lack of timely access to dental care.

Another reason for patients seeking general practitioners was anxiety and fear of dental procedures, which is consistent with the research by Cope et al. [12] and Levesque et al. [16]. Dental anxiety is a well-known significant factor affecting access to dental care and is a significant barrier that leads patients to consult general practitioners instead of dentists.

This study revealed that participants sought a general practitioner because of their inability or unwillingness to pay for dental care expenses. The cost of dental treatment had been described previously as a barrier to accessing dental care and a factor that might drive patients toward general practitioners. Reluctance to pay was also recognized as a known barrier to access.

In a study conducted in Wales, UK in 2015, the prescription of antibiotics for managing dental problems significantly varied among samples. Some general practitioners reported that they might not prescribe antibiotics for all patients with dental problems, but most patients receive antibiotics. In comparison, other general practitioners were highly resistant to prescribing antibiotics and only provided pain relief medications or advised patients to consult a dentist [14].

In the research conducted by Cope et al. [14], most general practitioners expressed that they have limited or no formal education in diagnosing and managing dental conditions. Therefore, most of their dental knowledge is informally gained through socializing with friends who are dentists, occasionally working alongside dentists to acquire knowledge, or sometimes being patients of dentists themselves, which helps them acquire knowledge.

One problem with this type of learning is that it can lead to confusion among general practitioners when they receive mixed information about managing dental problems, especially regarding the use of antibiotics.

In the study by Cope and colleagues [14], a general practitioner expressed that the rate of antibiotic prescription for dental problems had decreased since the improvement in access to local emergency dental services. This means that doctors can guide patients to places with better dental care and have less commitment to making efforts and managing conditions.

In the research work by Cope et al. [14], one general practitioner similarly stated that antibiotic prescriptions for dental problems have decreased since access to local emergency dental services has improved. This means that doctors can refer patients to a place with better care and feel less of an obligation to try and manage the condition. In Cope et al. research [14], many doctors, especially those who did not routinely prescribe antibiotics for dental problems rejected the patient's request for antibiotics; which caused patient dissatisfaction.

In Cope et al. [17] study, more than half of the treatments led to antibiotic prescriptions for dental problems. The widespread prescription of antibiotics for dental problems is concerning. Antibiotics may not resolve the issue in the long term, and they may interact with other medications and create antibiotic resistance. Furthermore, evidence suggests that prescribing antibiotics for dental problems may encourage future visits to general practitioners and reinforce the incorrect behavior of patients not seeking dental care for dental issues.

A study by Verma and colleagues [7] showed that the management of dental caries and infections primarily occurs through drugs such as pain relievers and antibiotics, which can be ineffective and, at best, provide short-term relief without addressing the patient's need for definitive treatment by a dentist. Despite the increase in awareness of the importance of surgical treatments for managing dental problems among doctors, general practitioners are still considered unsuitable professionals for controlling dental problems. Therefore, there is a need for more effort to encourage people to seek appropriate dental care when they have dental problems, possibly through proper awareness by dental care providers or campaigns to educate people about healthcare professionals in this field for addressing dental issues.

In this study, the number of visits ranged from 1 to 20 per month, with most cases occurring during the night. The reported sequence by general practitioners for dental consultations varies. While some general practitioners visit patients with dental problems weekly, others report that dental consultations during their practice are much less frequent.

In the Cope et al. study [14], the reported number of dental consultations varied from once a week to once every few months. While some doctors stated that the number of dental consultations remains relatively stable, other doctors stated that the number of patients presenting with dental problems increases or decreases during their time in the office. The reduction in these referrals is related to improved access to dentistry or patient awareness of where they can access appropriate dental care.

Attitudes towards the management of dental problems can be much different. In the study by Cope et al. [14], some doctors stated that some of their colleagues stubbornly refuse to visit patients with dental problems, although they always do so with good manners. In comparison, general practitioners who strongly opposed the management of dental problems in medical practice expressed different degrees of consternation than those who willingly treated such patients. The doctors explained that in their experience, this will lead to an increase in the probability of patients coming back during the next period of toothache.

Despite the general negative attitude towards dental problems in medical practice, general practitioners sympathize with patients who experience dental problems. Doctors are aware of the debilitating effects of toothache as well as the complexities of accessing emergency dental services. This issue shows that many of the contradictions shown by general practitioners towards dental consultations are related to system defects that lead to insufficient access to emergency dental care. The exception in this case were the patients who were thought to do this to avoid the costs of dental services [14].

The attitude of general practitioners towards dental consultations is influenced by the burden and pressure of dental problems, the general pressure of the workload of medicine, and the perceptions of the patient's motivation to request care. Cost concerns may be the main reason for avoiding dental care [7].

In the Cheng et al. study [18], problems related to oral and dental mucosa were reported as the most common problems. These findings are consistent with a study conducted by physicians in Ontario, Canada [19]. This study identified dental problems and supporting structures, hard tissue diseases, and soft tissue diseases of the mouth, except for gum and tongue lesions, as the most common oral conditions visited by physicians.

In Cope et al.'s study [3], women visited more than men, which is similar to findings from other articles [19–21]. The highest number of visits was for the age group of 20 to 29 years, and the reason was due to problems related to wisdom teeth and toothache.

In the study by Verma et al. [17], most patients were male. In South Korea and Ohio, 7.62% and 59% of

emergency department visits were made by men, respectively [10, 20].

In the investigation by Verma et al. [7] it was revealed that despite the wide age range of emergency department patients at Royal Hobart Hospital (from 0 to 88 years), the majority of patients are under 30 years old. 68% of patients visit the hospital during non-working hours when general dentists may not be available, which can lead to the need for dental services to be provided at Hobart Hospital during non-working hours.

Cheng et al. study [22] showed that the rate of individuals aged 70 and above visiting general practitioners for dental problems is significantly lower than those aged 54 and younger. These findings are consistent with the National Dental Health Survey of Australian adults in 2017–2018, which reported a decreasing trend in delaying or avoiding dental care due to cost in older age groups [23].

In Bell et al. study [5], the majority of patients preferred to consult with a medical practitioner rather than a dentist for non-dental jaw and facial problems. This result is similar to a survey of patients attending a rapid access clinic for suspected cancer cases, where 59% of patients presented to their general practitioner with a complaint of oral problems [24]. Another study on patient preference for oral ulcer therapy showed that 69% of patients preferred to consult with a general practitioner rather than a dentist for specific dental problems [25]. The results of the Bell et al. study [5] suggest that most patients perceive medical practitioners to have more training and therefore greater ability to deal with non-dental jaw and facial complaints. Additionally, most patients reported that their general practitioner is more accessible than their dentist.

In the Anderson et al. study [1], dental problems were seen in 44% of visits to dental clinics or 0.13% of all visits. However, nearly one-fifth of these visits were for non-dental problems that were also presented to family physicians. Many patients may also visit their physician without realizing that their symptoms have a dental origin. Although the presence of patients in general practitioner clinics is often seen as a major problem, this study found that only 0.3% of visits were for oral and dental health problems.

Similarly, the Office of Population Censuses and Surveys/Royal College of General Practitioners study showed a low prevalence of oral and dental problems among family physician patients (185 consultations per 10,000 people) [26]. In Anderson et al.'s study [1], patients with dental problems were generally in the age groups of 0–4 years and 16–44 years. A disproportionate number of weekend visits were shown for dental problems compared to all visits. Patients who met with their general practitioner more regularly had a stronger relationship

with them and were therefore more likely to request help from them than from a dentist, with whom they have less frequent contact.

It was revealed by Bell et al. [5] that most participants find medical practitioners more accessible than dentists when scheduling appointments. This suggests that factors such as working hours, appointment systems, and waiting times can influence a patient’s decision to seek advice for dental problems [27, 28]. The direct cost associated with dental treatments can be an effective factor in choosing a healthcare provider.

Since there is no single reason why patients with dental problems visit their general practitioner, it seems that there will be no single solution to ensure that patients seek the most professional individuals capable of managing their dental conditions. However, there is a need to overcome barriers that prevent access to dental care. It may also be necessary to take action to increase access to emergency dental care for patients who do not have a specific dentist and to ensure that dentists have timely access to emergency care for their patients so that they do not have to wait long periods during which they may seek care from a general practitioner. These findings also indicate a need for information on where to seek care for oral diseases, especially the role that dentists can play in managing non-dental oral problems. This information should be tailored to reflect local dental service providers along with treatment costs. General practice teams should also be able to guide patients with dental problems to local emergency dental services or other care resources if necessary. The limitations of this study were non-cooperation of some patients and the lengthening of several interviews.

**Conclusion**

Most participants agreed that dental problems are more effectively treated by dentists, because of the lack of a specific dentist, dissatisfaction with dental treatments, lack of a dentist nearby, absence of emergency dental care, and familiarity with a family physician. The most common reasons for visits were toothache and dental abscesses. Patients also sought treatment for TMJ pain, referred nerve pain, wisdom tooth pain, numbness and tingling in the jaw, gum inflammation, oral lesions, and ulcers. Furthermore, other factors such as opening hours, appointment systems and waiting time can also effects on patient’s consult behaviors regarding dental problems.

**Mention specific recommendations for future research**

This in turn should facilitate the design of interventions to reduce consultation rates for dental problems in general medical practice in Iran. This could be approached using qualitative methods, in order to capture the richness and complexity of influences on patients’

care-seeking behavior. Alternatively, a cross-sectional design could be employed, in which dominant influences on consultation behavior are quantified amongst a representative sample of the Iranian population who have sought care from a general medical practitioner for a dental problem. There is therefore a need for further high-quality studies exploring the reasons why patients in Iran may seek care from a general medical practitioner general medical practitioner when experiencing dental problems.

**Appendix 1**

**COREQ (Consolidated criteria for reporting qualitative research) checklist: 32-item checklist**

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International Journal for Quality in Health Care. 2007. Volume 19, Number 6: pp. 349–357. (Ref:26)

Item No	Guide Questions/Description	Reported on Page #
<b>Domain 1: Research team and reflexivity</b>		
<b>Personal Characteristics</b>		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Page# 4,5
2. Credentials	What were the researcher’s credentials? E.g., PhD, MD	Page# 4,5
3. Occupation	What was their occupation at the time of the study?	Page# 4,5
4. Gender	Was the researcher male or female?	Page#4
5. Experience and training	What experience or training did the researcher have?	Page#4
<b>Relationship with participants</b>		
6. Relationship established	Was a relationship established prior to study commencement?	Page#4
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research?	Page#4
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Page#5
<b>Domain 2: study design</b>		
<b>Theoretical framework</b>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Page# 4,5
<b>Participant selection</b>		
10. Sampling	How were participants selected? e.g., purposive, convenience, consecutive, snowball	Page# 4,5



Item No	Guide Questions/Description	Reported on Page #
11. Method of approach	How were participants approached? e.g., face-to-face, telephone, mail, email	Page# 4
12. Sample size	How many participants were in the study?	Page# 4
13. Non-participation Setting	How many people refused to participate or dropped out? Reasons?	Page# N/A
14. Setting of data collection	Where was the data collected? e.g., home, clinic, workplace	Page# 4
15. Presence of nonparticipants	Was anyone else present besides the participants and researchers?	N/A
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Page# 4
<b>Data collection</b>		
17. Interview guide	Were questions, prompts, and guides provided by the authors? Was it pilot tested?	Page# 4
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	N/A
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Page# 4,5
20. Field notes	Were field notes made during and/or after the interview or focus group?	Page#4,5
21. Duration	What was the duration of the interviews or focus group?	Page# 4
22. Data saturation	Was data saturation discussed?	Page# 4,5
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Page# 4,5
<b>Domain 3: analysis and findings</b>		
<b>Data analysis</b>		
24. Number of data coders	How many data coders coded the data?	Page#5
25. Description of the coding tree	Did the authors provide a description of the coding tree?	N/A
26. Derivation of themes	Were themes identified in advance or derived from the data?	Page# 5
27. Software	What software, if applicable, was used to manage the data?	N/A
28. Participant checking	Did participants provide feedback on the findings?	N/A
<b>Reporting</b>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g., participant number	Page#6,7
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Page#6–9
31. Clarity of major themes	Were major themes clearly presented in the findings?	Page#6,7
32. Clarity of minor themes	Is there a description of diverse cases or a discussion of minor themes?	Page#6–9

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12903-024-04899-y>.

Supplementary Material 1

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### Author contributions

Raziyehsadat Rezvaninejad: wrote the main manuscript text Maryam Alsadat Hashemipour: wrote the main manuscript text Mina Mirzaei : data collection Haleh Rajaeinia: data collection.

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### Data availability

Availability of data and materials: The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request.

### Declarations

#### Ethics approval and consent to participate

The study was approved by the ethics committee of Kerman University of Medical Sciences by the research deputy of Kerman University of Medical Sciences. A statement to confirm that all experimental protocols were approved by the research deputy of Kerman University of Medical Sciences. Informed verbal consent was obtained from the participants for examinations and participation in the study following the provision of the needed explanations by the research deputy of Kerman University of Medical Sciences. All the information on the subjects will remain confidential. The authors would like to express their gratitude to the Vice Deputy of Research at Kerman University of Medical Sciences for their financial support (Reg. No. 401000594). This project was approved by the Ethics Committee of the university with the code IR.KMU.REC.1401.477. All experiments were performed according to relevant guidelines and regulations.

#### Consent for publication

Not Applicable.

#### Competing interests

The authors declare no competing interests.

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