ORIGINAL ARTICLE

Journal of Research in Dental and Maxillofacial Sciences DOI: 10.61186/jrdms.9.4.59



Inter-disciplinary Gap between Medicine and Dentistry: Referral Pattern, and Attitude of Physicians towards Oral Medicine in Yazd Province

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Article History

Received: 23 Jan 2024 Accepted: 12 Jun 2024

Abstract

Background and Aim: Oral health neglect could be an indicator of more serious mistakes in medicine. This study was conducted to assess the referral pattern and attitude of physicians towards oral medicine specialty, and their performance in dealing with oral lesions.

Materials and Methods: In this cross-sectional study, validated questionnaires were administered among 180 medical practitioners with different specialties working in Yazd, Iran. The questions were about the referral pattern, attitude towards oral medicine specialty, and their performance in dealing with oral lesions. Data were analyzed using the Chi-square test, paired t-test, ANOVA, and Pearson's correlation test (alpha=0.05).

Results: Of all, 81.1% of the participants had at least one encounter with an oral lesion. One hundred respondents (82.6%) were aware of oral medicine as an independent specialty. The most referred cases were oral lesions in pregnant women (59%), followed by oral ulcers, and red-white lesions (54.1%). The mean score of referral pattern had no significant association with specialty, gender, age, experience, and workplace, but the highest score was acquired by surgeons. The difference in attitude based on specialty was significant (P=0.02), and the highest score was acquired by ENT specialists. Males had a significantly more positive attitude towards oral medicine specialists. There was a significant positive correlation between practice and attitude (P=0.001, r=0.285).

Conclusion: Considering the unfavorable attitude and poor practice of medical specialists, it is time to reiterate and enhance the knowledge of physicians about oral medicine specialty.

Keywords: Dentistry; Medicine; Oral Medicine; Referral and Consultation

Cite this article as: Hoseini-Sharif SZ, Namiranian N, Owlia F. Inter-disciplinary Gap between Medicine and Dentistry: Referral Pattern, and Attitude of Physicians towards Oral Medicine in Yazd Province. **J Res Dent Maxillofac Sci. 2025; 10(1):59-67.**

Introduction

Oral medicine is a field of dentistry that focuses on diagnosis and management of oral and maxillofacial diseases [1-3]. The scopes of oral medicine vary worldwide; therefore, there is no international consensus on the definition and practice of this field. This branch of dentistry is concerned with the oral healthcare

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of medically compromised patients, and management of oral and maxillofacial lesions [4]. Access to oral medicine is usually based on referrals by other specialists. In Iran, physicians are often the first to investigate patients with orofacial symptoms and make diagnoses related to oral health [5]. Referral is a critical component and an integral part of routine medical practice [6]. Lack of familiarity with oral medicine often leads to significant delays in accurate diagnosis and appropriate treatment of oral lesions [7]. Lack of sufficient oral health training and education among physicians is another problem [8]. There is a need for a multidisciplinary approach in modern healthcare systems that incorporates the specialty of oral medicine [9]. Scientific literature has revealed a great professional interest in oral medicine, with numerous recent articles reflecting a profound rise in multiple factors such as high frequency of oral lesions [10-14]. This study aimed to assess the referral pattern and attitude of Iranian physicians regarding oral medicine specialists, and their performance in dealing with oral lesions.

Materials and Methods

This cross-sectional study was conducted at Shahid Sadoughi University of Medical Sciences. This center is one of the two public referral centers for oral medicine in Yazd Province, Iran. А self-report, online questionnaire was distributed through the social media applications among physicians. Participants were selected among physicians practicing in Yazd, Iran, whose specialties were somehow related to management of oral lesions (including internal medicine, ENT, dermatology, cardiology, pediatrics, gynecology, neurology, and infectious disease specialties). The majority of the participants were local; however, some of them were from other regions practicing in Yazd. The consensus sampling method was used. Due to

the quarantine conditions during the COVID-19 pandemic, the questionnaire was distributed online.

The sample size was calculated to be 120, using the following formula for estimating the mean knowledge score considering P=49%, d=13%, and type one error=0.05.

$$n = \frac{z_{1-\frac{\alpha}{2}}^2 pq}{(d)^2}$$

The questionnaire was designed by a panel of oral medicine specialists, and its validity and reliability were confirmed. The Cronbach alpha value for all the subscales combined was approximately 0.72. A pilot study was conducted to assess the reliability of the questionnaire. The questionnaire was also pretested on 10 randomly selected participants, and a consensus was reached regarding the clarity and relevance of all questions. Then, the questionnaire was distributed using the Porsline platform. All participants were asked to fill out the The questionnaire. link to the online questionnaire was sent to a sample of 180 physicians. As a reminder, the questionnaire was sent again to the participants after one week and one month.

The questionnaire consisted of four main sections. The first section asked for the sociodemographic variables including gender, age, years of experience, and workplace employment, and the second section included 11 items designed to assess the respondents' referral pattern and dealing with oral lesions. The participants responded to each statement (Table 1). A scoring system was used with each correct answer given one point while incorrect answers received zero points. The total score ranged from zero to 11. The rest of the questionnaire sections included items that evaluated attitude and practice with respect to oral lesions. Attitude was assessed by 4 Likertscale items, while practice was assessed by six items. Finally, the participants indicated their opinion regarding the necessity of referral to an oral medicine with one "yes" or "no" question.

Initially, the purpose and method of the survey were explained t to the participants, and they could leave the study at any step of the process. All methods included in this study were in accordance with the Declaration of Helsinki. This study was approved by the Committee of Ethics of Human Research at Yazd Shahid Sadoughi University of Medical Sciences (IR.SSU.DENTISTRY.REC.1400.019).

Data were analyzed using SPSS version 22 (Chicago, IL, USA). The results were expressed as mean and standard deviation. Comparisons were made by independent t-test, Chi-square test, and ANOVA. The Pearson's correlation test was used to analyze the relationship between practice and attitude. P<0.05 was considered statistically significant.

Results

A total of 180 medical specialists were included in this study between June and September 2022. Among all participants, 122 individuals filled out the questionnaire completely, yielding a response rate of 67.77%.

The mean age was 44.38±9.26 years. There were 54 (44.3%) males and 68 (55.7%) females. Of the participants, 67 (54.9%) were working in the public sector, 17 (13.9%) were in the private sector, and 38 (31.1%) were in both.

Of 122 participants, 82.6% were aware of oral medicine as a dental specialty, and 54.9% had heard about dental hospitals. Nearly half of the participants had encountered oral lesions many times, and 44.3% had obtained information about oral lesions during the past year.

The mean score of the referral pattern was 4.24±3.05. The frequency distribution of the

referral pattern of the participants is demonstrated in Table 1.

The mean attitude score was 1.37±0.99. Among 122 physicians questioned, 59% believed they did not receive sufficient training to treat oral lesions. Only 29.5% stated they had sufficient skills to examine the head and neck lymph nodes, and 76.2% thought it was necessary to acquire more information about oral lesions. Almost 15% felt they had sufficient knowledge to diagnose oral lesions. There was a significant difference in the attitude of the participants based on their specialty (P=0.02). ENT specialists had the highest attitude score (2.2±1.13). The practice of physicians in dealing with oral lesions is shown in Table 2. The mean practice score was 1.94±0.95. ANOVA showed that the practice of medical specialists did not differ based on their specialty (P=0.177). However, the highest practice score belonged to ENT specialists with a mean score of 2.60 ± 1.07 . No significant association was found between the referral pattern and practice with age, gender, or work experience (P>0.05, Table 2).

The attitude of males towards oral medicine was significantly more positive than females (P=0.013). Although the participants who were working in the public sector had a worse attitude and poorer practice toward oral lesions, these differences were not significant (P>0.05). The frequency distribution of the practice score of the participants is shown in Table 3.

The Pearson's correlation test illustrated that there was a statistically significant positive relationship between the attitude and practice of physicians (r=0.028 and P=0.001) such that by improving their attitude, their practice improved as well.

The Pearson's correlation test did not discover a significant relationship between referral pattern and attitude (r=-0.086 and P=0.350) or practice (r=-0.087 and P=0.342).

Table 1. Frequency distribution of the referral pattern of the participants

Referral pattern questions	ENT specialist N (%)	Internal medicine specialist N (%)	Dermatologist N (%)	Oral medicine specialist N (%)	Infectious disease specialist N (%)	Neurologist N (%)	Gynecologist N (%)	General dentist N (%)	Others N (%)
1. Where do you refer patients with	30(24.6)	14(11.5)	7(5.7)	63(51.6)	0	0	0	3 (2.5)	4(3.3)
2. Where do you refer patients									
affected by a sexually transmitted	7(5.7)	2(1.6)	0	26(21.3)	84(68.9)	0	0	0	3(2.5)
disease with oral lesions?									
3. Where do you refer hematologic natients with oral lesions?	7(5.7)	61(50)	0	30(24.6)	0	0	0	0	22(18)
4. Where do you refer patients with	35(28.7)	5(4.1)	0	35(28.7)	0	39(32)	0	2 (1.6)	6(4.9)
5. Where do you refer pregnant	8(6.6)	0	1(0.8)	72(59)	0	0	12(9.8)	26(21.3)	3(2.5)
6. Where do you refer atopic patients with oral lesions?	21(17.2)	30(24.6)	13(10.7)	50(41)	0	0	0	0	8(6.6)
Where do you refer cancer patients with oral lesions?	12(9.8)	44(36.1)	0	51(41.8)	7(5.7)	0	0	0	7(5.7)
8. Where do you refer neurologic patients with oral lesions?	8(6.6)	7(5.7)	0	48(39.3)	0	52(42.6)	0	2(1.6)	5(4.1)
9. Where do you refer patients with oral lesions?	8(6.6)	7(5.7)	22(18)	66(54.1)	0	0	0	0	5(4.1)
10. Where do you refer patients with taste change or tongue lesions?	18(22)	52(42.6)	0	39(32)	0	0	0	1(0.8)	8(6.6)
11. Where do you refer patients with salivary disorders?	71(58.2)	10(8.2)	0	39(32)	0	0	0	0	2(1.6)

Table 2. Mean scores of the referral pattern, attitude, and practice of the participants

Specialty	Mean (±SD) score of Referral pattern	Mean (±SD) score of Attitude	Mean (±SD) score of Practice
Cardiology	3.87(±2.69)	0.62(±0.51)	1.37(±0.51)
Dermatology	4.08(±3.14)	2.08(±1.08)	2.33(±0.98)
Internal medicine	4.5(±3.02)	1.42(±0.8)	1.84(±0.96)
ENT	2.9(±2.6)	2.2(±1.13)	2.6(±1.07)
Infectious diseases	3.84(±2.4)	0.84(±0.4)	1.83(±0.4)
Gynecology	3.76(±3.11)	1.00(±0.57)	1.69(±0.75)
Neurology	5.2(±3.35)	0.7(±0.48)	1.6(±0.69)
Surgery	6.00(±3.53)	1.4(±1.51)	1.8(±1.48)
Pediatrics	5.33(±3.26)	1.66(±1.03)	1.03(±2.33)
Others	4.08(±3.29)	1.42(±1.06)	1.01(±2.00)
P value*	0.675	0.002	0.177
Gender			
Female	4.39(±2.92)	1.66(±1.08)	1.87(±1.01)
Male	4.13(±3.16)	1.14(±0.85)	2.00(±0.91)
P value**	0.527	0.013	0.459
Age group (years)			
<44	4.28(±3.15)	1.33(±1.04)	1.80(±0.91)
≥44	4.12(±2.91)	1.43(±0.93)	2.08(±0.99)
P value**	0.46	0.48	0.10
Workplace			
Public	4.21(±3.05)	1.17(±0.73)	1.82(±0.86)
Private	3.23(±2.90)	1.76(±1.34)	2.35(±0.78)
Both	4.76(±3.07)	1.55(±1.13)	1.97(±1.12)
P value*	0.332	0.195	0.119
Work experience (years)			
<5	4.32(±2.72)	1.47(±0.99)	1.88(±0.91)
6-10	5.04(±3.40)	1.36(±1.07)	1.84(±0.94)
11-20	3.40(±3.05)	1.2(±0.84)	1.8(±0.84)
>20	4.19(±3.01)	1.45(±1.09)	2.22(±1.11)
P value*	0.267	0.704	0.292

* ANOVA; **Independent t-test, SD: Standard deviation

Table 3. Frequency distribution of the practice score of the participants

Practice questions	Answer	Number
	V	(%)
	Yes	44 (36.1)
Do you routinely examine the oral cavity of patients for possible lesions?	No	26 (21.3)
	If the patient complains of an oral lesion	52 (42.6)
If your answer to the above mentioned question was no what is the reason for	insufficient information about oral lesions	69 (56.6)
not having an oral examination?	Uncooperative patients	28 (23)
not naving an or at examination:	Lack of instruments	25 (20.5)
De new eele showt the bistom of taba and alash alward	Yes	98 (80.3)
Do you ask about the history of tobacco and alcohol use?	No	24 (19.7)
Do you examine head and neck lymph nodes for all patients in your routine	Yes	26 (21.3)
practice?	No	96 (78.7)
	Prescribing medicine or biopsy according to	28 (23)
	my diagnosis	
How do you deal with oral lesions?	Prescribing medicine, and acquiring more	10 (1 1 0)
	information	18 (14.8)
	Patient referral	76 (62.3)
	Academic dental centers	20 (16.4)
If you decide to refer a patient with an oral lesion, who/where do you refer	Oral medicine specialists	65 (53.3)
him/her to?	Maxillofacial surgeons	2 (1.6)
	Other medical specialists	35 (28.7)

Discussion

Oral conditions can affect general health. Poor knowledge of physicians and medical students in different communities about oral health has been well documented in the literature [10, 12, 15]. The knowledge of general practitioners and medical students about oral medicine specialty has been evaluated in different studies [15-17]. This study revealed that only 14.8% of physicians had sufficient knowledge to diagnose oral lesions. Only 17.2% felt confident enough to manage oral lesions. Most participants (76.2 %) mentioned that they needed to learn more about oral lesions, which was in line with the findings of a previous study [18]. An earlier study stated moderate knowledge about the signs and symptoms of common oral diseases among primary healthcare physicians [19]. In previous studies, about 50% of medical interns were aware of the presence of oral medicine specialty [10, 20]. This rate was 90% in a study conducted on medical students [18]. However, in the present study, 82.6% of medical specialists had heard about this field, but they acquired a low referral pattern score. This issue stems from the lack of familiarity and trust in this specialized field of dentistry. Poor knowledge of physicians about oral diseases contributes to delays in referrals and treatment [16]. The diagnostic skill of Iranian medical interns for detection of oral lesions was found to be close to 50% [21, 22]. Variations in the reported rates in this regard may be justified by the time passed since graduation and insufficient content of educational curricula regarding oral medicine. Factors such as differences among the universities, the time and location of the study, and different types of questionnaires used may also play a role in this regard.

A previous study revealed that medical students were unwilling to treat oral lesions, and preferred to refer such cases [18]. If they had managed oral lesions, they would have done it wrongly in 60-70% of the cases [18]. The most important reason for referring patients with oral lesions was not having sufficient information about the treatment methods in 56.6% of the cases. Lack of appropriate educational content related to oral lesions in the medical curriculum and lack of information about normal variations were mentioned as effective factors in referral

of patients with oral lesions by the physicians [21]. On the other hand, medical practitioners thought they had no legal responsibility for diagnosis and treatment of oral lesions [18].

Due to the presence of a one-way communication between medical and dental schools, the physicians' familiarity with oral diseases is limited [23]. Dental students benefit from the knowledge of medical practitioners a lot through affiliated courses during their undergraduate education, and through hospital courses during their postgraduate education.

In the current study, the mean score of referral of patients with systemic diseases who had oral lesions was 4 out of 11 (38.6%), which was a low score. This rate was close to that reported in previous studies [15, 18, 21].

Only 9% of the patients referred to Mashhad Oral Medicine Department had been referred by general practitioners and specialists [15]. The rate of referral to oral medicine specialists varies in different countries, ranging from 9% to 26% [15, 24, 25]. Lack of timely referral by physicians and medical staff causes a delay of 15 to 24 months between the detection of oral lesion by patient and examination by an oral medicine specialist [21, 26]. On average, patients with oral squamous cell carcinoma had two to three consultations before referral to an oral medicine specialist [27]. Such a long delay can cause serious and irreversible complications for patients [28].

Most of the participants in the present study were aware of the presence of oral medicine specialty, while 57% of general practitioners and medical interns were not aware of the presence of this specialty field in a previous study [5]. In another study conducted in India, only 39% of physicians were aware of the presence of this specialty [16]. In the present study, 45.9% of the participants had encountered patients with oral lesions many times; 27.9% of the participants had encountered patients with oral lesions more than once. However, only 38.6% of them had referred such patients to an oral medicine specialist.

Although the mean referral score among different specialties was not significantly different, the highest score belonged to general surgeons. Most patients with oral lesions had been referred by primary healthcare workers to general surgeons and ENT specialists [16]. Dermatologists acquired a higher knowledge score about oral medicine among Jordanian medical practitioners [12]. In the present study, the best attitude and practice were related to ENT specialists. This finding was consistent with a previous study [26].

In the present study, 76.2% of the participants expressed their need to acquire more information about oral lesions, while this percentage was 86% among medical students in Dundee [13]. About one-fifth of the participants (21.3%) in the present study did not examine the oral mucosa of their patients at all, and 42.6% only examined it if the patients complained of an oral lesion. Another study reported that 41% of medical students examined the oral cavity of patients with suspected oral lesions, which was consistent with the present study [13].

In the present study, the attitude of males was significantly higher, but their referral rate and practice were not significantly different from those of females. In another study, males had a significantly higher knowledge about oral medicine than females [12]. However, another study found no significant difference between males and females in this regard [5]. Younger age and less work experience were associated with higher knowledge scores [5]. The present study did not find a significant association between the number of referrals, practice, or attitude with age or graduation time, which was in line with the results of Khalili et al. [17]. Knowledge of medical practitioners had

significant differences based on age, type of specialty, and country of graduation in a previous study [12]. Some studies showed a direct relationship between knowledge and graduation year [5, 29]. In the present study, there was no significant difference in the referral pattern, attitude, or practice of physicians based on their workplace.

In the present study, the correlation between attitude and practice was significant. In another study, the correlation between knowledge and practice of medical interns regarding the specialty of oral medicine was positive and significant as well [10].

In this study, the most referred cases were related to oral lesions in pregnant women (59%), followed by oral ulcers and red-white lesions (54.1%), which was consistent with the findings of Alrashdan et al. [12]. In their study, 72% of the cases of oral ulcers were referred to an oral medicine specialist [12].

Of the total cases referred to an Italian oral medicine clinic, 439 patients (75.4%) had been visited by one or two physicians, 51 (8.8%) were visited by three, and 72 (12.4%) were visited by more than three. Of the samples, 9.7% did not have a referral, 62.9% were referred by dentists, and 27.4% by physicians. Of the total patients, 4.3% were referred by dermatologists and 2.7% by ENT specialists [6]. Their results were in line with the present findings. In the present study, the highest practice score belonged to ENT specialists.

Medical practitioners play a key role in the diagnosis of oral lesions. Facilitating the patient referral process can have a tremendous impact on the treatment costs imposed on patients and the government. It is obvious that by eliminating unnecessary costs related to this vicious cycle, significant development and progress can be made in the healthcare system [30]. In addition to the negative impact on the patient's quality of life, delay may lead to disease progression.

Therefore, medical practitioners and dentists should give patients with oral lesions a golden opportunity for timely diagnosis and treatment and coordination of care, and preserve public health resources by correct referral to an oral medicine specialist [31].

In the present study, 23% of the participants performed biopsies and drug therapy, 14.8% postponed the main treatment in the next visit after consulting with colleagues, and 62.3% referred the patient.

Numerous studies have revealed that physicians from different specialties in Iran did not have enough training in oral health. Remote specialist consultations using an innovative, lowcost, smartphone-based telehealth tool may soon increase access to specialists for individuals with suspicious oral lesions [32].

Considering the vital role of medical practitioners in referring patients with oral and maxillofacial problems, the referral system of patients to oral medicine specialists should be facilitated. Due to the specialization of medical fields and the desire of patients to be visited by specialists rather than general practitioners, it is imperative to enhance the knowledge of medical specialists about oral lesions.

It is recommended to include educational content about oral lesions in the approved medical curriculum. Another way to minimize the gap between medicine and dentistry is by holding seminars with common topics and publishing articles focusing on dentistry in medical journals. Dissertations related to the field of medicine and consulting with medical specialists is another effective approach to achieve this goal.

The study had some limitations. The first limitation was the relatively small sample size, due to the COVID-19 pandemic. The second limitation was the cross-sectional design of the study which did not allow analyzing other factors in the referral pattern. The strengths of the present study included the use of an online survey, thereby ensuring maximum privacy and confidentiality. Second, the authors investigated different specialties that could have encountered oral lesions. Incorporating dental education in the medical curriculum, publishing articles in medical journals, and presenting dental articles in medical seminars are some of the strategies that can improve the knowledge level of physicians in this regard. It is recommended to fill this gap by enriching the medical educational curriculum with oral lesion contents. Promoting the integration between medical and dental practitioners can have a profound positive impact on patients' quality of life and health outcomes.

Conclusion

Despite no significant difference in the referral score among different specialties, the highest score was obtained by general surgeons. The best attitude and practice belonged to ENT specialists. The obtained results revealed lack of integration between medical practitioners and oral medicine specialists in this region of Iran. Considering the unfavorable attitude and poor practice of physicians, it is time to enhance their knowledge about oral medicine specialty.

Acknowledgment

The authors would like to thank the Vice-Chancellor for Technology Research of Shahid Sadoughi University of Medical Sciences, Yazd for approving and financially supporting this project.

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