



Evaluation of Awareness of General Practitioners Working in Yazd, Iran, Concerning Oral Diseases in 2015

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Abstract

Background: The incorporation of oral health promotion into general healthcare has been proposed by the World Health Organization. General practitioners (GPs) could play a vital role in the promotion of oral healthcare.

Objectives: This study was designed to evaluate the awareness of oral and maxillofacial medicine specialty and its scope of practice among Iranian GPs.

Methods: The present cross-sectional study was conducted in Yazd, Iran. A total of 95 GPs randomly filled out a close-ended questionnaire. Responses to the questionnaire were analyzed using descriptive and analytical statistics. The self-administered questionnaire comprised 35 items and covered the demographical details and characteristics of participants, in addition to their awareness of oral and maxillofacial medicine and its scope of practice. Finally, awareness scores were classified as weak, intermediate, and good. The data were analyzed using a *t*-test and Pearson correlation. A *P*-value ≤ 0.05 was considered statistically significant for all statistical analyses.

Results: Only 24.2% of GPs had enough awareness. The mean score of total awareness about oral diseases was 11.82 ± 3 . The mean scores of total awareness for the oral manifestations of systemic diseases, medical considerations in dentistry, and oral lesions were 3.59 ± 1.17 , 3.96 ± 1.62 , and 4.27 ± 1.65 , respectively.

Conclusions: According to this study, the awareness of GPs playing a key role regarding oral medicine and oral manifestations of systemic diseases was weak. It is recommended to revise the medical curriculum to incorporate related courses about common oral diseases into the medical curriculum. The aim will only be achieved by improving the coordination between dentists and GPs.

Keywords: Awareness, General Practitioners, Oral Medicine, Oral Mucosal Lesions

1. Background

Oral medicine is a specialty placed between medicine and dentistry. One of its branches focuses on oral diseases (1). It is generally imagined that oral diseases are only limited to the dental profession. There is limited communication between dentists and other allied health professions, both in academic and research aspects and in the field of treatment (2). Yet, oral healthcare and dealing with risk factors require a multi-disciplinary approach. In other words, the promotion of oral health needs to be included in physicians' healthcare (3, 4). Nevertheless, various studies worldwide have shown that a high percentage of physicians do not have sufficient awareness of the relationship between oral health and general health (5). Due to a lack of oral health information

in the approved medical curriculum in Iran, medical students do not get familiar with oral problems (6).

Some patients refer to general practitioners (GPs) for the diagnosis and treatment of oral problems. Additionally, numerous patients consult with physicians about oral lesions before referring them to dentists. As a result, the only opportunity for the detection of serious oral lesions might occur during a routine medical visit (4).

Having enough awareness about oral diseases is mandatory for physicians. Incorrect guidance could complicate patients' problems (5). Good oral health plays a vital role in general health. Many oral diseases are manifestations of systemic diseases. According to these facts, GPs should be familiar with oral diseases (7). Some oral manifestations can be a guide for the diagnosis of systemic diseases, and many systemic diseases require

special dental considerations (8). Due to the presence of unique tissue of the dental epithelium and salivary glands, various lesions could be observed in the oral cavity (9).

2. Objectives

In this study, an attempt was made to evaluate the awareness of GPs regarding the specialty of oral and maxillofacial medicine.

3. Methods

In this descriptive cross-sectional study, based on the information given in previous studies (10) where $S = 0.25$, a sample size of 96 was obtained with an accuracy of $d = 0.05$ and a confidence level of 95% ($\alpha = 0.05$). To determine the samples, reference was made to the list of GPs in the medical system as a statistical frame, and 100 samples were randomly selected from a total number of 754 GPs (using a random number table). The questionnaires were delivered to the subjects by referring to their workplaces. To receive the completed questionnaires, the researcher referred to the samples up to three times; in case of their non-responsiveness, the next person on the list of GPs was replaced. Finally, five incomplete questionnaires were excluded from the study.

The inclusion criteria were willingness to participate in the study and completion of the questionnaire. The participants selected from GPs working in Yazd, Iran, who graduated at least 2 years ago, were included in the study. The participants should have work experience of 2 - 10 years. There should not be a gap between graduation time and starting medical work. The study subjects should be engaged in the medical profession for at least 4 hours per day. The exclusion criterion was a failure to fully fill out the questionnaire. The present study was conducted to investigate the awareness of GPs regarding oral diseases in Yazd. In addition, this study investigated the relationship between demographic characteristics and GPs' awareness.

3.1. Data Collection Instrument

A researcher-made questionnaire consisting of four parts was used to collect the data. The first eight items were related to demographic characteristics. The second part was related to awareness of oral manifestations of systemic diseases with 9 items. The third part entailed 9 items on awareness of dental considerations. The last part included 9 items related to awareness of oral lesions.

The questionnaire was evaluated by four experts in the field of oral and maxillofacial medicine in order to check

content validity and face validity. Their opinions were applied in the first round. The questionnaire was returned to the experts for reconfirmation (rate response: 100%).

A pilot test-retest, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) were conducted to test the structural validity of the questionnaire of awareness regarding oral diseases. To confirm the construct validity of the instrument (i.e., the factor structure based on the three dimensions), CFA was performed using the maximum likelihood method. In addressing this issue, the factor structure was confirmed by CFA. Therefore, the article provides a valid and reliable tool for evaluating awareness regarding oral diseases.

The 27 items of the questionnaire are grouped into three dimensions, which were obtained using EFA, namely oral manifestations of systemic diseases, dental considerations of patients with systemic diseases, and oral lesions. The instrument was developed with the intention that it could be used to evaluate awareness regarding oral diseases (Table 1). Items 9 - 17, 18 - 26, and 27 - 35 are related to oral manifestations of systemic diseases, dental considerations of patients with systemic diseases, and oral lesions, respectively.

To establish the reliability of the questionnaire, 11 questionnaires were given to a pilot group of GPs. The calculated content validity index and content validity ratio were 0.89 and 0.78, respectively. The items of the first part were not scored, and the physicians' answers to each item were analyzed separately. Each item from the second to the fourth part was given 1 point if answered correctly. In this study, as in previous studies, awareness scores in each domain were classified as poor (lower than 9), moderate (9 - 18), and high (18 - 27) (11, 12). The total awareness will be within a range of 0 - 27.

3.2. Data Analysis

The data were entered into the SPSS software (IBM SPSS Statistics for Windows, version 18.0.) and analyzed by descriptive and analytical statistics. The data were analyzed using a *t*-test and Pearson correlation. A P -value ≤ 0.05 was considered statistically significant for all statistical analyses.

3.3. Ethical Considerations

Completing the questionnaire was voluntary. The necessary explanations about the questionnaire were provided, and the principles of ethics in the research were observed. The questionnaires were filled out without names. All the information was kept confidential. All the participants filled out an informed consent form before the study. The current study was approved by the

Table 1. Awareness Scores of General Practitioners in Different Dimensions

Different Domains of Oral and Maxillofacial Medicine	Mean \pm SD
Oral manifestations of systemic diseases	3.59 \pm 1.17
Dental considerations of patients with systemic diseases	3.96 \pm 1.62
Oral lesions	4.27 \pm 1.65
Total awareness of oral diseases	11.82 \pm 3

Research Ethics Committee of Shahid Sadoughi University of Medical Sciences, Yazd, Iran (IR.SSU.REC.1394.55).

4. Results

In this survey, 21 (22.1%) and 74 (77.9%) participants were male and female, respectively. The participants' mean age was 30.9 ± 5.9 years (age range: 26 - 47 years). The mean work experience was 4.59 ± 5.24 years (range: 1 - 20 years). [Table 1](#) shows the distribution of GPs' awareness in different domains.

The samples were studied into two age groups. The average score of awareness regarding dental consideration of patients with systemic diseases was significantly higher in the older age group. Nonetheless, there was no significant difference in GPs' awareness between the two age groups in the two other areas. Moreover, there was no significant difference between the two age groups in total awareness of oral diseases ([Table 2](#)).

The total awareness score of the samples regarding oral diseases had no significant correlation with work experience ($r = 0.04$, $P = 0.70$). In addition, there was no significant correlation between work experience and awareness level in none of the areas ($P > 0.05$).

The study subjects were evaluated into two groups according to the graduated university. The first group included 64 physicians who completed their higher education in Yazd, and the second group entailed 31 physicians who graduated from other Iranian medical universities (i.e., medical universities in Isfahan, Tehran [Shahid Beheshti and Shahed], Shiraz, Rafsanjan, and Kerman). The average score of awareness regarding dental considerations of patients with systemic diseases was significantly higher in graduates from other medical universities than Yazd medical university ($P = 0.027$). However, there was no significant difference in total awareness regarding oral and maxillofacial medicine and the two areas of oral manifestations of systemic diseases and oral lesions between physicians who graduated from Yazd medical university and those who graduated from other medical universities ([Table 2](#)).

Additionally, 89.5% ($n = 85$) of GPs had a patient with an oral lesion. In addition, 75.8% ($n = 72$) of GPs

were not familiar with an oral and maxillofacial medicine specialty. When faced with an oral lesion, 33.7%, 41.6%, 18%, 18%, 16.9%, and 2.2% of GPs referred the patient to otorhinolaryngologists, general dentists, dermatologists, oral medicine doctors, maxillofacial surgeons, and general surgeons, respectively.

5. Discussion

The results of the current study revealed that only about 24.2% of GPs had enough awareness. The mean score of total awareness of oral diseases was 11.82 ± 3 . The mean scores of oral manifestations of systemic disease, medical considerations in dentistry, and oral lesions were 3.59 ± 1.17 , 3.96 ± 1.62 , and 4.27 ± 1.65 , respectively.

Saraswat investigated the awareness, attitudes, and practices of Australian GPs about oral cancer risk factors in 2021. All the GPs were aware of the main risk factors for oral cancer, including tobacco and alcohol. However, some participants had limited information in this regard. The participants had a positive attitude toward risk factors associated with oral cancer and confirmed the importance of oral cancer risk assessment. Most of the GPs did not perform routine examinations of oral cancer ([13](#)).

The results of the present study revealed that general awareness regarding the field of oral and maxillofacial medicine was weak, which is consistent with the results of the study by Saraswat et al. ([13](#)). Although the participants were selected randomly in this study, the female-to-male ratio was 3. On the one hand, this difference might be attributed to more acceptance of female students in recent years. On the other hand, it can be considered that male participants had less desire to fill out the questionnaire. The findings of the current study are in line with a survey conducted by Basir Shabestari et al. ([14](#)).

In this cross-sectional study, the level of awareness of oral mucosal lesions was evaluated as moderate. Mojabi et al. evaluated the awareness and diagnostic skills of 62 GPs and 80 medical interns in Qazvin, Iran, regarding benign and malignant oral lesions. There was a sufficiently significant correlation between the average awareness score (5.64 out of 9) and the average score of diagnostic skills (4.89 out of 8). A significant

Table 2. Distribution of General Practitioners' Awareness in Different Domains Based on Studied Variables

Variables	No. (%)	Oral Manifestations of Systemic Diseases	Dental Considerations of Patients with Systemic Diseases	Oral Lesions	Total Awareness
Age groups (y)					
< 30	57 (61.3)	3.56 ± 1.27	3.68 ± 1.32	4.33 ± 1.8	11.58 ± 2.77
≥ 30	36 (38.7)	4.67 ± 1.04	4.41 ± 1.98	4.3 ± 1.35	12.39 ± 3.29
P-value	-	0.68	0.035	0.94	0.2
Gender					
Male	21 (22.1)	3.8 ± 1.08	4.67 ± 1.39	4.48 ± 1.12	12.95 ± 2.5
Female	74 (77.9)	3.5 ± 1.2	3.76 ± 1.64	4.22 ± 1.77	11.5 ± 3.06
P-value	-	0.33	0.02	0.53	0.05
Graduated university					
Yazd	64 (67.37)	3.56 ± 1.28	3.7 ± 1.65	4.14 ± 1.67	3.59 ± 1.17
Other universities	31 (32.63)	3.64 ± 0.91	4.49 ± 1.46	4.55 ± 1.59	4.27 ± 1.65
P-value	-	0.74	0.027	0.26	0.052

relationship was observed between the awareness and diagnostic skills score with age, graduation date, and history of dermatology or ear, nose, and throat (ENT) training courses ($P < 0.05$). Most of the participants (81.3%) were interested in further learning about oral lesions (15). The level of awareness in the aforementioned study was higher than in the present study. This discrepancy can be partly due to the number and type of questions posed (15).

The levels of awareness of oral manifestations of systemic diseases and awareness of dental considerations were assessed as weak. These two areas were not evaluated in previous studies separately. Greater awareness of mucosal lesions than the other two areas can be due to more coverage of this field with dermatology and ENT content. There was no significant correlation between the average total awareness score with age and work experience. One reason for the difference could be the lack of sufficient awareness of oral and maxillofacial medicine in the approved medical curriculum in Iran. In Mojabi et al.'s study, awareness, and diagnostic skills were inversely correlated with increasing age and graduation time. There was no significant relationship between the average total score of awareness and the university of graduation. Nevertheless, there was a significant relationship between gender and awareness level; accordingly, the average total score of awareness was higher for male subjects than for female subjects (15).

In this study, it was demonstrated that the level of physicians' familiarity with oral medicine was 24.2%, which is relatively consistent with the results of studies by Shooryabi et al. (48%) and Basir Shabestari et al. (10%) (14, 16). The level of GPs' familiarity with oral medicine was

detected at 39% by Bokkasam et al.; however, this rate in the current study was determined to be 24.2%, which was less than similar studies (15, 17).

In this study, about 90% of physicians had patients with oral lesions. In Khator et al.'s study, 27% and 54% of GPs reported that they frequently and sometimes had patients with oral lesions, respectively (18). The aforementioned statistics indicated that patients with oral lesions refer to physicians in addition to dentists in large numbers; this finding confirms the need for training physicians in the field of oral medicine. In Khator et al.'s study, conducted in India, although 55% of the GPs were aware of the existence of oral medicine specialty, only 17% of patients with oral lesions were referred to them. This percentage is consistent with the percentage in the present study (18%) (17, 18). In the aforementioned study, most patients with oral lesions were referred to GPs (42%) and then to general dentists (18%) (18). However, in the present study, most referrals were to general dentists (41.6%) and then to otorhinolaryngologists (33.7%).

Obtained results revealed that a large number of patients with oral lesions are referred to other specialists. However, in developed countries, the first step in the diagnosis and treatment of oral lesions is to refer patients to oral and maxillofacial medicine specialists and maxillofacial surgeons to achieve more effective results by saving money and time (10). The correct use of the referral system can play a vital role in the quality and adjustment of treatment costs. On the other hand, a lack of referral or incorrect referral can result in incomplete treatments or requests for unnecessary para-clinical tests. In many situations, it imposes high costs on patients (4).

According to Shooryabi et al.'s study, there was an average of 17 months between the discovery of an oral lesion and referral to an oral and maxillofacial medicine specialist. This time interval can cause serious and irreversible complications for patients (16). Owlia et al. stated that out of 300 cases of hospitalized leukemic patients, only 4% consulted with a specialist due to oral problems. In addition, among the cases of consultation, 75% and 25% were due to dental problems and mucosal problems, respectively (4).

Given that the mouth is the mirror of general health, oral diseases might negatively impact general health (7). Together, dentists and physicians form an important part of a complete health system. On the other hand, due to the deficient content of oral health in the medical education curriculum in developing countries, physicians' awareness of different dental specialties is very low (18).

The Association of Dental Education in Europe determined the educational needs through the documents provided by several dentistry schools. It recommended maintaining oral hygiene and treating common oral diseases as important educational goals in medicine. In this regard, several European organizations have suggested a set of educational minimums related to oral diseases be included in the medical curriculum. In England, a guideline framework has been proposed for educational promotion in the field of oral medicine (11). In the United States, the authorities have taken measures to increase the awareness of GPs and medical students. Mouradian et al. in the United States presented an oral health curriculum for medical students at the University of Washington based on five topics, namely community-based oral health, caries, periodontal diseases, oral cancers, and oral manifestations of systemic diseases (19). After evaluating the results of this elective curriculum, there was a significant improvement in the attitude and awareness of medical students regarding the promotion of oral health (19).

An investigation of the general medical curriculum revealed that there is no clear topic about oral and dental health education (20). It appears that the weak performance of physicians is due to insufficient confidence in their abilities and skills regarding oral screening, referral problems, insufficient access to dentists, and lack of close communication between physicians and dentists. The confirming point is that dentist colleagues are the main source of information about oro-dental problems for almost one-third of the physicians (20). It seems that the treatment system should be designed in such a way that guarantees more interaction and closer professional communication between those medical and dental specialties that

have overlapped areas. Some strategies are proposed to improve awareness of the oral medicine field. Some of these solutions are the inclusion of the content of dental education in related fields of medicine, publishing articles focusing on dentistry in medical journals, holding international conferences with medical and dental groups, and establishing communication between medical and dental specialists running common research projects (18).

Alrashdan et al. in Jordan suggested that 52.2% of physicians were aware of oral medicine as a separate specialty (21). There was a significant difference in the level of awareness of physicians regarding periodontics in different age groups, higher academic levels, the country of the academic degree, and the relevant specialty. Another study provides evidence of a deep interdisciplinary gap between medicine and dentistry and emphasizes the importance of focused training in oral health-related disciplines for physicians (20). Similar results in Bokkasam et al.'s study in India confirmed that the relationship between medicine and dentistry in India was weak (17). In a review article, Bindakhil et al. examined the value of oral medicine in the modern healthcare system. They pointed out that several scientific studies in the medical community have shown more professional interest in oral and dental hygiene, which could be due to the increasing spread of oral diseases. The aforementioned article has emphasized the need for the use of oral medicine experts for a multifaceted approach in the healthcare system (22). One of the limitations of the present study was the non-cooperation of physicians to complete the questionnaire.

5.1. Conclusions

Based on the findings of this study, the awareness of GPs playing a key role regarding oral diseases and especially awareness of systemic complications of oral diseases was weak. It is recommended to revise the medical curriculum regarding the addition of courses related to common oral diseases and oral manifestations of systemic diseases. The enhancement of this awareness will only be achieved by familiarizing physicians and medical students with the scientific and practical skills of dentists.

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Footnotes

Authors' Contribution: F.B. developed the initial concept of the study. F.B. and Z.R. contributed to the study design and wrote the manuscript. F.B. collected the data, and ZR oversaw data collection. MH. A contributed to the methodology and analysis/interpretation of the data. Z.R. and F.B. contributed to data analysis. All the authors revised and approved the final manuscript.

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