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Original article

Knowledge and Awareness towards Oral Medicine Specialty among Medical Practitioners in Tripoli, Libya: A cross-sectional study

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Abstract

Oral medicine (OM) is a specialty of dentistry that is concerned with the nonsurgical management of disorders and conditions affecting the oral cavity and the oral health care of medically compromised patients. Medical practitioners play a crucial role in integrating oral health into general health care, as early recognition and management of these often-treatable conditions can lead to improved health outcomes. However, inadequate awareness of oral health and related disciplines appears to be common among medical practitioners. This study was conducted to assess the level of awareness and knowledge score of OM specialty among medical practitioners, the volume of OM clinical cases that they come across in their routine practice, and to whom they refer them. A cross-sectional, printed, and validated questionnaire-based study was conducted among 114 medical practitioners from various specialties working in public healthcare centers and private practice in Tripoli, Libya. This study was conducted between December 2024 and April 2025. The study revealed a notable lack of awareness regarding the OM specialty among the participating medical practitioners in Tripoli. A significant majority (73.7%, n = 84) reported having never heard of the specialty. In contrast, only 26.3% (n = 30) of the respondents. Frequent incidence of oral mucosal lesions (34.2%), followed by Oral manifestation of systemic diseases (28.9%), and rare incidence of salivary gland disorders (56.1%) and facial pain and Temporomandibular Joint (TMJ) disorders (47.4%) were noted in their routine practice. OM specialists received relatively few referrals across all conditions, with their highest rate noted in relation to oral mucosal lesions (just over one-fifth, 20.2%, n=23). The distribution of oral medicine knowledge scores among medical practitioners revealed a mean of 7.46 ± 1.75. Categorically, the majority of participants (67.5%) demonstrated moderate (fair) knowledge, 27.2% displayed good knowledge, and a minority (5.3%) were classified as having poor knowledge, and intra-group agreement on knowledge ratings was assessed using Kendall's coefficient of concordance (W). The MSc group demonstrated the highest degree of agreement (W=0.369, P < 0.001). This study provides evidence on the profound interdisciplinary gap between medicine and dentistry. There is slight knowledge and very low awareness to word the OM specialty among medical practitioners in Tripoli, Libya, indicating that OM specialists should spend more effort to increase awareness of the specialty and need more education, training, which will improve the quality of health care and bridge the gap between medicine and dentistry.

Keywords: Oral Medicine Knowledge, Awareness, Medical Practitioners, Oral Medicine Specialty.

Introduction

In recent decades, the rapid expansion of knowledge across various domains has led to the emergence of numerous specialties and sub-specialties, and dentistry is no exception. However, public awareness and understanding of these specializations, particularly among the medical community worldwide, remain limited [1]. Oral Medicine (OM) is one such subspecialty within dentistry that focuses on the oral health care of patients with complex medical conditions. It involves the diagnosis and non-surgical management of medical disorders that affect the oral and maxillofacial region [2-5]. OM specialists are uniquely trained to manage a wide range of diseases that manifest in the oral cavity, including ulcerative and vesiculobullous diseases, autoimmune disorders, and gastrointestinal-related conditions. They also provide dental care for medically compromised patients [4,6,7]. The practice of OM has a close relationship with both dental and medical disciplines. OM specialty is thus placed at the interface between medicine and dentistry and inherently promotes interdisciplinary collaboration [3-5].

Despite the recognized interdependence between systemic and oral health, many healthcare professionals, including physicians, possess limited dental knowledge [8-11]. This gap is concerning, particularly since general practitioners (GPs) are often the first point of contact for patients presenting with oral symptoms ranging from benign lesions to potentially malignant conditions. Early diagnosis is critical, as it significantly influences treatment outcomes and overall prognosis [3]. Studies have revealed that many physicians are unfamiliar with dental diseases and systemic conditions with oral manifestations. Furthermore, they cannot often recognize and respond to dental emergencies [12]. This is particularly problematic in underserved communities, where physicians may be the only accessible healthcare providers capable of identifying oral health issues [13]. Moreover, the lack of distinction between the scope of OM specialty and other closely related dental disciplines (especially oral surgery and periodontology) among referring clinicians is most likely the result of this. The referral to OM is often delayed, which could worsen the prognosis of many conditions or at least negatively impact the oral health-related quality of life for these patients [14,15].

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This study aims to address this gap by assessing the awareness, knowledge, and attitudes of medical practitioners in Tripoli, Libya, toward the specialty of OM. The findings will contribute valuable insights into the current level of integration between the medical and dental fields, identify areas for improvement, and suggest strategies to enhance interdisciplinary collaboration and patient care.

Methods

Study design

A cross-sectional, questionnaire-based study was conducted among 114 medical practitioners from various specialties working in public healthcare centers and private practice in Tripoli, Libya. This study was conducted between December 2024 and April 2025.

Questionnaire development and distribution

Researchers created and validated the questionnaire following a thorough examination of the literature [1]. The questionnaire consisted of two main sections. The first part questions covered demographical details and characteristics of participants such as age, gender, experience year, address and qualification, while the second part of questionnaire consisted of straight forward questions designed to assess participant's awareness of OM specialty as well as to evaluate the frequency pattern and referral pattern of common oral conditions.

Data collection

Data were collected through face-to-face interviews using a questionnaire. Consisted of two sections of questions, the first section gathered personal information including age, gender, years of experience, address, and professional qualifications. The second section include nine simple questions: four multiple choice questions addressing the frequency patterns of common oral conditions, and four questions focusing on referral patterns of these four questions, the four questions assed referral practices by asking participants to identify the appropriate medical practitioners or specialties for specific conditions, while the final question evaluated their overall awareness of OM specialty.

Study population and sampling

The study population comprised actively practicing medical clinicians in Tripoli, Libya. A convenience sample of 114 participants was recruited from December 2024 and April 2025, through on-site visits at major healthcare facilities inclusion criteria required: Active clinical practice in Tripoli, at least 2 years of post-qualification experience, direct patient care responsibilities, trainees and non-clinical practitioners, and dermatologists were excluded from this study. Each participant's verbal agreement was obtained, and they were guaranteed that their answers would remain private.

Statistical analysis

In this study, statistical analysis, the collected data were entered and analyzed using SPSS version 25. Descriptive statistics, including means and standard deviations for continuous variables and frequencies with percentages for categorical variables. One-way analysis of variance (ANOVA) was applied to compare oral medicine knowledge scores across academic qualification groups. Spearman's rank-order correlation assessed the association between years of clinical experience and knowledge scores. Kendall's coefficient of concordance (W) measured inter-rater agreement within academic groups regarding knowledge ratings, evaluating consistency among ordinal data. Significance level for all statistical tests was $p < 0.05$.

Results

The cross-sectional study included 114 medical practitioners, with a mean age of 40 ± 7 years. The majority were female, accounting for 75 participants (65.8%). Most respondents held an MBBS degree (71.1%, n = 81). As illustrated in Figure 1, nearly half of the participants were employed in public healthcare centers (49.1%, n = 56), while approximately a quarter worked in private practice (21.1%, n = 24). A smaller portion were engaged in multi-sector roles (15.8%, n = 18), and about one in seven held academic positions (14.0%, n = 16). The mean duration of professional experience was 11 ± 6 years, ranging from 2 to 35 years.

Awareness of Oral Medicine (OM) Specialty

The survey revealed a notable lack of awareness regarding the oral medicine specialty among the participating medical practitioners in Tripoli. A significant majority (73.7%, n = 84) reported having never heard of the specialty. In contrast, only 26.3% (n = 30) of the respondents indicated that they were aware of the oral medicine specialty (Figure 2).

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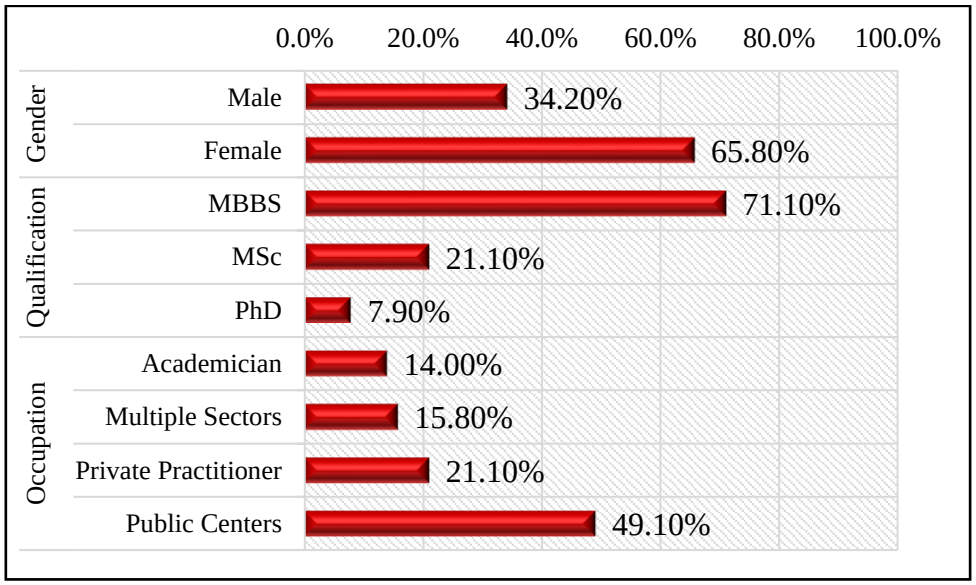

Figure 1. Demographic and Characteristics of Participants

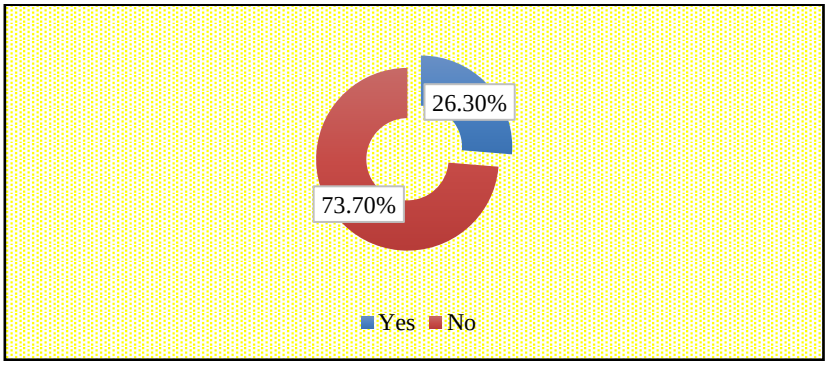

Figure 2. Awareness of Oral Medicine Specialty Among Medical Practitioners

The study identified clear trends in the frequency with which medical practitioners managed various oral conditions. Over half of the respondents (56.1%) reported that they occasionally managed oral manifestations of systemic diseases, while nearly one-third (28.9%) reported frequent management of such cases. A smaller proportion (14.9%) reported rare involvement with these conditions. Facial pain and temporomandibular joint (TMJ) disorders were less commonly addressed, with nearly half of the participants (47.4%) indicating infrequent clinical exposure. In contrast, oral mucosal lesions were the most frequently managed, with approximately one-third of practitioners (34.2%) reporting regular clinical engagement. Salivary gland disorders were the least commonly encountered, with more than half of the respondents (56.1%) indicating rare clinical involvement (Figure 3).

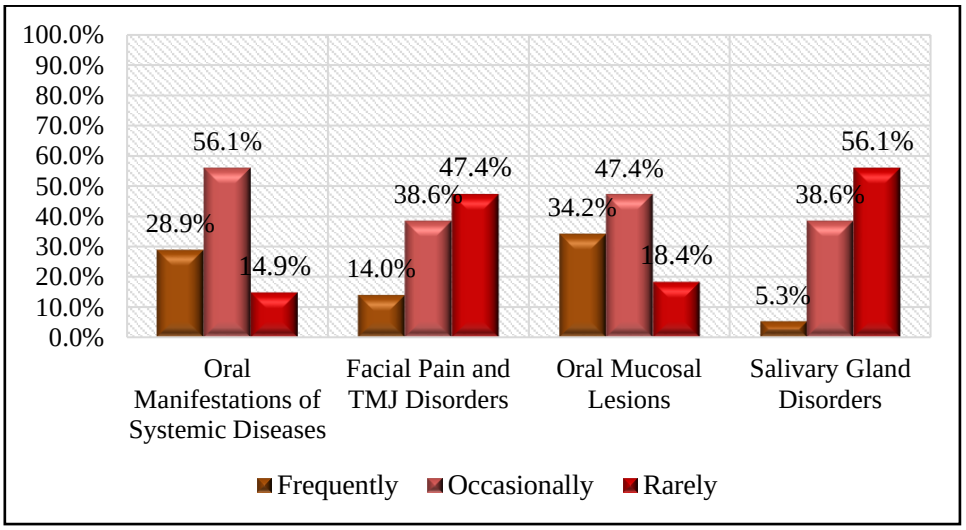

Figure 3: Patterns in the frequency of encounters with oral conditions among medical practitioners.

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Dentists were the most frequently preferred specialists for oral mucosal lesions, receiving referrals from the majority of participants (61.4%, n = 70). Salivary gland disorders were overwhelmingly directed to endocrinologists, with nearly two-thirds of respondents (63.2%, n = 72) selecting this option. General medicine specialists were the primary referral destination for oral manifestations of systemic diseases, chosen by approximately two-fifths of participants (42.1%, n = 48). For facial pain and temporomandibular joint (TMJ) disorders, about one-third (33.3%, n = 38) preferred referring to maxillofacial surgeons. OM specialists received relatively few referrals across all conditions, with their highest rate noted in relation to oral mucosal lesions (just over one-fifth, 20.2%, n = 23). Referrals to general physicians and surgeons were minimal and context-specific, particularly low for salivary gland disorders (ranging from 0% to 14.0%) (Figure 4).

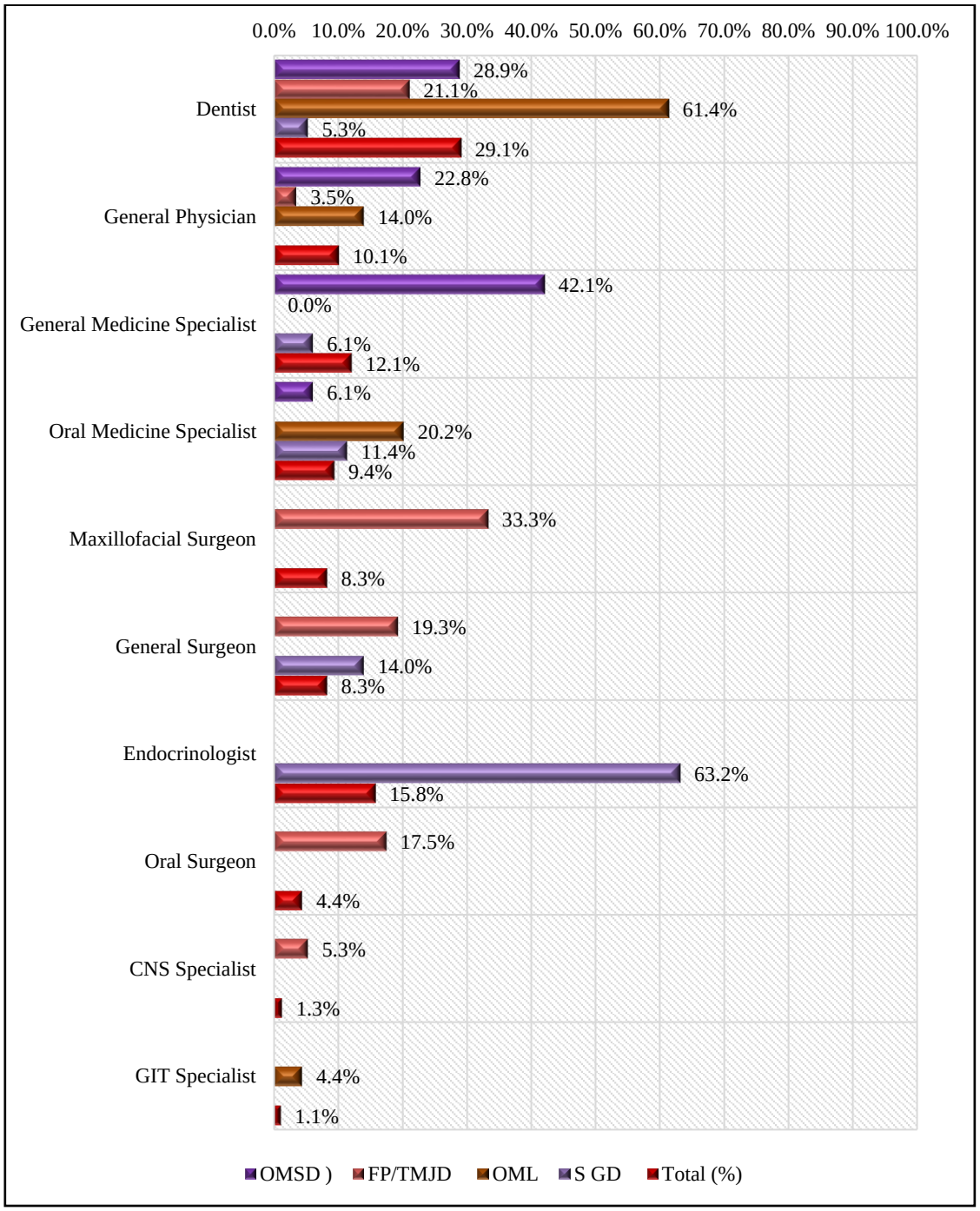

Figure 4: Referral Preferences for Oral Conditions (N = 114)

The distribution of oral medicine knowledge scores among medical practitioners revealed a mean of 7.46 ± 1.75. Categorically, the majority of participants (67.5%) demonstrated moderate (fair) knowledge, 27.2% displayed good knowledge, and a minority (5.3%) were classified as having poor knowledge (Table 1).

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Table 1. Distribution of Knowledge Scores Among Medical Practitioners

Knowledge Category	Frequency (n)	Percentage (%)
Poor Knowledge	6	5.3%
Fair Knowledge	77	67.5%
Good Knowledge	31	27.2%

A one-way ANOVA revealed no significant differences across qualification groups (P=0.346). Despite MSc holders showing marginally higher scores, all groups fell within the "fair knowledge" range (Table 2).

Table 2. Knowledge Scores by Academic Qualification

Academic Qualification	Mean ± SD	95% Confidence Interval	P-value
MBBS	7.38 ± 1.82	6.98 – 7.79	0.346
MSc	7.88 ± 1.36	7.30 – 8.45	
PhD	7.00 ± 1.94	– 8.49	

Spearman's rank-order correlation analysis showed a non-significant negative correlation between years of clinical experience and knowledge scores (ρ= 0.079, p = 0.401). Intra-group agreement on knowledge ratings was assessed using Kendall's coefficient of concordance (W). The MSc group demonstrated the highest degree of agreement (W = 0.369, P < 0.001), followed by the MBBS group with moderate agreement (W = 0.239, P < 0.001). The PhD group showed low concordance that was not statistically significant (W = 0.200, P = 0.145). (Table 3).

Table 3. Kendall's Coefficient of Concordance for Knowledge Agreement by Academic Qualification

Academic Group	Kendall's W	p-value
MBBS	0.239	<0.001
MSc	0.369	<0.001
PhD	0.200	0.145

Discussion

As William Osler said, "The Mouth is the mirror of general health." [16] Poor oral conditions may adversely affect general health, and certain medical conditions may have a negative impact on oral health. [7] The demand for and awareness of O M has increased over time, likely due to the increase in oral problems associated with age, psychological status, and systemic treatments. [18] The practice of oral medicine in the USA goes back to 1945, with the foundation of the American Academy of Oral Medicine. [19] It complements dental and medical practice, and patients commonly seek help for orofacial pain, dry mouth, and mucosal lesions. [18, 20]

Dental and medical practitioners both form integral parts of a comprehensive health care team. To the best of our knowledge, this is the first report in the literature focusing on the awareness and knowledge of OM specialty among a representative population of medical practitioners (general medical practitioners (GPs) and specialists) from different educational backgrounds and specialties working in various sectors of medical services in Tripoli, Libya. The findings provide valuable insights into the current state of OM knowledge, awareness, and competencies among this important group of healthcare providers. The interdisciplinary gap identified in the current survey reflects a broader medical and dental culture that has separated oral health from overall health for a long time. As a result, physicians have not routinely considered oral health within their domain [21]. This common practice of overlooking oral diseases is likely to impact the oral health-related quality of life of many patients, especially since oral diseases and conditions could represent early manifestations of many systemic conditions. The results regarding the knowledge and awareness levels of oral medicine specialty among medical practitioners are in line with numerous studies. A study by Fatemeh et al., [22] it was demonstrated that the level of physicians' familiarity with oral medicine was (24. 2%), and (10%) Basir Shabestari et al. [23, 24], which is relatively consistent with the results of studies by Bokkasam et a., [1] that showed only 39 (39%) were aware of the specialty and the remaining 61 (61%) were not aware of the specialty in dentistry among 100 study subjects, and (48%) Shooryabi et al. [23,24]. In contrast to these studies, Alrashdan et al, in Jordan, suggested that 52. 2% of physicians were aware of OM as a separate specialty [15]. Although a study performed by Sarumathi et al. in Chennai city to examine the level of awareness of common oral diseases among primary care physicians showed moderate awareness among them about the signs and symptoms of the common oral diseases, and there was a low awareness about the treatment of certain diseases [25].

In the present study, the oral mucosal lesions were the most frequently managed, with approximately one-third of practitioners, 34.2% reporting, followed by nearly one-third 28.9% reporting regular clinical engagement. Salivary gland disorders were the least commonly encountered, with more than half of the

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respondents, 56.1% indicating rare clinical involvement. In contrast to the results of the study by Bokkasam et al, [1]. Among 100 subjects interviewed, oral manifestations of systemic diseases were the most frequently managed, with approximately 44% reported, followed by 35% of facial and temporomandibular joint (TMJ) pain reported regularly in clinical. Salivary gland disorders were the least commonly encountered, with 43% indicating rare clinical involvement.

In this study, oral medicine specialists received relatively few referrals across all conditions, with their highest rate noted in relation to oral mucosal lesions (just over one-fifth, 20. 2%, n = 23). Referrals to general physicians and surgeons were minimal and context-specific, particularly low for salivary gland disorders (ranging from 0% to 14. 0%). while the other oral conditions referred to endocrinologists 63.2%, dentists 61.4%, general medicine specialists, and 42.1%, maxillofacial surgeons. For facial pain and temporomandibular joint (TMJ) disorders.

Similar results to the results of the current study, an analysis of data on sources of referral to OM clinics shows that in Australia, for example, only 18% of total referrals were generated by medical practitioners and Fatemeh et al., (18%) of patients with oral lesions were referred to OM specialist [22,26]. This percentage is consistent with the percentage of Khator et al.'s study, [27] conducted in India, although 55% of the GPs were aware of the existence of the OM specialty, only 17% of the total referrals of patients. However, a slightly higher percentage of referrals from medical practitioners to an OM referral center was reported in Ireland, at a level of 26%. A majority of such referrals were made by general practitioners (73%) [28].

Recently, in 2024, a cross-sectional study was performed to assess the knowledge and awareness of various dental specialties and conditions among the medical fraternity, which reported that 78% of participants knew that OM and radiology specialties, which results disagree with our study. However, only 50% of interns, 50% of PGS, and 96% of faculty were aware that the oral medicine and radiology specialty is responsible for the diagnosis and treatment of lesions of the mouth mucosa, for the diagnosis and treatment of oral manifestations of underlying systemic diseases, and for the 3D planning and printing of post-surgical prosthesis. Additionally, 75% of the interns chose oral medicine and radiology as their specialty when it came to referrals for imaging of the teeth and the maxillofacial region, while the remaining 25% chose oral and maxillofacial surgery [29]. Moreover, a study by Fatemeh et al., about 90% of physicians had patients with oral lesions [22]. In Khator et al.'s study, 27% and 54% of GPs reported that they frequently and sometimes had patients with oral lesions, respectively [27]. 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 OM.

In an attempt to probe the confounders that may influence the level of OM awareness, incidence of oral conditions, and referral pattern among medical practitioners, A one-way ANOVA revealed no significant differences across qualification groups (P=0.346). Despite MSc holders showing marginally higher scores, all groups fell within the "fair knowledge" range. Spearman's rank-order correlation analysis showed a non-significant negative correlation between years of clinical experience and knowledge scores (ρ = -0.079, p = 0.401) that can be explained by these studies: In the UK, a study was conducted to assess the adequacy of medical training in oral diseases. Only 28 % of medical doctors referred oral medicine cases correctly [9]. In a study performed by Sardella et al., only 45 % of medical referrals to oral medicine specialists had a diagnosis, suggesting that the other referrals involved oral lesions of an obscure nature. Only 13 % of the diagnoses of oral lesions made by medical physicians agreed with the final diagnosis made by oral medicine specialists, suggesting that medical practitioners have difficulty diagnosing oral medicine cases [30].

Previous reports have shown that medical practitioners have a low level of awareness towards oral health in general and that they lack sufficient training in basic clinical oral examination [8,9,10]. With regards to oral cancer in particular, several aspects in the knowledge and practices of medical practitioners were found to be deficient, and recommendations on additional focused education and training at the same level of OM specialist skills [26-32].

The country of graduation was found to be a significant determinant of OM awareness among participants; none showed exceptionally high levels, and the significant difference between specialties surveyed in this report in terms of OM awareness is likely to reflect this notion. However, as aforementioned for age groups and country of graduation, the overall levels were markedly less than satisfactory as reported by Riordain et al., where a variety of medical specialties contributed very slightly to the total referrals to an OM service [28]. 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 and the average score of diagnostic skills. A significant 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 [33].

Medical practitioners tended to refer to immune-mediated conditions. This finding was noted in a study of Demarosi et al. and Hall et al [20,30]. Furthermore, the most difficult cases to manage were oral graft versus host disease, followed by oral premalignant lesions and oral ulcers, then lichen planus/ lichenoid reaction, and oral manifestation of vesiculobullous diseases. We could not find comparable data in the literature. This

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may be because medical practitioners prefer to refer rather than to treat these patients. They tended to refer oral cases to dermatologists and otolaryngologists [26].

The important part of the current survey showed that even those participants who were aware of the existence of OM as an independent specialty had some serious issues with identifying the scope of practice of OM. Oral ulceration gained the highest likelihood of being referred to OM, followed by other mucosal. However, this will be of little value if medical practitioners do not perform oral soft tissue screening or do not have basic knowledge of oral anatomy. Interestingly, Salivary gland disorders and orofacial pain conditions (Temporomandibular Disorders and Trigeminal Neuralgia) were the least common conditions identified as part of the OM specialty. This indicates that OM, for many medical practitioners, is merely concerned with mucosal pathology.

Several reasons that affected our findings caused difficulty in communication and referral. The availability of oral medicine specialists and the type of certification and some felt comfortable in diagnosing oral lesions or that they could consult fellow physicians if necessary. Furthermore, many doctors don't know what OM specialists do, and some even see the specialty as purely academic with no clinical role. Because of this, patients aren't always referred for proper oral care, especially in complex medical cases. Finally, participants supposedly aware of the OM specialty had difficulties separating its scope of practice from other dental disciplines when faced with common dental problems. Conditions routinely managed by oral surgeons, maxillofacial surgeons, prosthodontics, or even general dentists were determined by many as an area within the responsibility of OM specialists.

Communication between OM specialists and other healthcare providers is also weak. Even when referrals happen, there's often little collaboration, which can negatively impact patient care. However, the doctors who have interacted with OM professionals generally report positive experiences. One of the most critical areas where OM should be involved is before major treatments like chemotherapy or organ transplants. Poor oral health can cause serious complications during these procedures, so early dental screening is essential.

The current study emphasizes the need for better training and interprofessional collaboration. Medical and dental students should learn together through shared classes and clinical experiences. Programs that promote teamwork can help build a stronger understanding of oral health's role in overall patient care. Research, workshops, and training programs for medical residents, especially in specialties that often encounter oral health issues.

Limitations

The cross-sectional design of the current study limits the ability to establish main causal relationships between medical practitioners' knowledge and their practices regarding oral health and captures data at one point in time, lacking insights into changes over time. The sample size may be limited, affecting the generalizability of the results to all general practitioners GPs and specialties within the medical field in Tripoli. The self-reported nature of the questionnaire may introduce response bias, as participants may overestimate their knowledge and attitudes towards dental health or vice versa. Moreover, the questionnaire scope: possible gaps in the coverage of all oral medicine specialty aspects.

Conclusion

There is limited knowledge and low awareness of OM specialty among medical practitioners in Tripoli, Libya. The study shows a notable number of OM-related cases, yet the referral system is weak. OM specialists should work to raise awareness, which will enhance healthcare quality. The findings also highlight the significant gap between medicine and dentistry and the need for focused education and training in oral health to empower practitioners and improve patient outcomes. To improve awareness of OM, integrate continuing medical and dental education (CME & CDE) programs. Publish OM-related research in both medical and dental journals. Revise medical curricula to include common oral disease education and practical exposure to dentistry is worth.

Declarations

There are no financial, personal, or professional conflicts of interest to declare.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Informed Consent

The consent form was voluntarily verbal by all the participants.

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