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The Clinical Practice of Oral Medicine in Saudi Arabia: A Cross-Sectional Study

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Abstract:

Objectives: The primary objective of this study was to assess the characteristics of Oral Medicine (OM) practitioners and describe the scope of OM practice in Saudi Arabia. Secondary aims included the evaluation of differences in clinical practice of OM based on postgraduate training backgrounds and practitioner characteristics.

Methods: In this prospective, cross-sectional study, a structured online survey was distributed to OM practitioners across all regions of Saudi Arabia. The survey collected data on demographics, postgraduate training, practice settings, referral patterns, and the use of teledentistry. Data were summarized with descriptive statistics, and associations between categorical variables were evaluated using chi-square tests.

Results: Forty-eight practitioners (median age 37 years, 60.4% female) completed the survey, indicating a response rate of 68.6%. Most practitioners were based in the Western and Central regions of Saudi Arabia. While 43.7% completed postgraduate training in North America, approximately one-quarter were trained in Saudi Arabia. OM services were primarily delivered in academic and hospital settings. Oral mucosal lesions and temporomandibular joint disorders (TMD) were the most commonly encountered conditions. Biopsies were performed by 82.6% of practitioners, and the majority of referrals originated from general dentists for oral lesions, TMD, or orofacial pain. Clinical practice patterns differed by training background, with advanced or longer-duration training associated with increased procedural involvement. There were no significant differences in biopsy or imaging practices. Practitioners with advanced postgraduate training more frequently managed oral mucosal lesions, TMD, and oral manifestations of systemic diseases ($p = 0.030$). There were no significant differences between practitioners in biopsy practices ($p = 0.124$) or diagnostic imaging ($p = 0.418$). However, there were differences in providing other procedures, such as intralesional injections and occlusal splints, which were more commonly offered by PhD holders and certificate-trained practitioners ($p = 0.002$).

Discussion: This study provides a national perspective on OM practice in Saudi Arabia. The observed geographic and training-related heterogeneity may influence patient accessibility to OM services. These findings highlight the importance of interdisciplinary integration and standardization of training programs.

Conclusion: To our best knowledge, this is the first comprehensive study on OM practitioners and their clinical scope in Saudi Arabia. There appears to be a growing demand for OM services in the country, with regional disparities in access to care. These results highlight the need for national strategies to enhance OM service availability and ensure equitable oral healthcare delivery across the country.

Keywords: Oral medicine, Orofacial pain, Medically compromised patients, Dentistry, Saudi Arabia.

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1. INTRODUCTION

The American Academy of Oral Medicine (AAOM) defines Oral Medicine (OM) as a "distinct dental specialty responsible for the oral healthcare of medically complex patients and for the diagnosis and management of disorders or conditions affecting the oral and maxillofacial region" [1]. Originating in the United States in 1945, OM emphasizes integrating dental education, clinical practice, and research [2]. However, the American Dental Association (ADA) did not officially recognize OM as the eleventh specialty in dentistry until March 2020 [3].

OM requires a wide range of clinical expertise, including the diagnosis and management of oral mucosal lesions, salivary gland dysfunction, orofacial pain (OFP), temporomandibular joint disorders (TMD), and oral manifestations of systemic diseases. Supporting this, nearly 90% of OM practitioners consider the management of these conditions as core competencies.

Despite growing recognition of OM, its scope and training vary considerably around the world due to differences in healthcare systems, regulations, and educational standards, leading to inconsistencies in postgraduate training curricula globally [4-7]. OM training usually includes the management of medically complex patients as a core element, and this responsibility falls within the scope of OM practice in many countries, including Israel, Spain, Italy, Croatia, and Sweden [6]. In other countries, such as in the United Kingdom, specialists in Special Care Dentistry generally provide this care [8]. With a globally aging population and an increasing prevalence of chronic systemic disease, the demand for OM services continues to increase [9]. This highlights the need for OM professionals who are appropriately trained to address the oral health implications of systemic disease, its complications, and its treatments [10, 11]. Accurate and current data on the OM workforce would therefore help to inform workforce planning and resource allocation. We previously reported that the number of OM specialists in Saudi Arabia is significantly lower than in North America and other developed nations [10], but there are no available national statistics to describe their characteristics or clinical roles [12].

Therefore, the objective of this study was to assess the characteristics of OM practitioners and explore the current scope of OM practice across Saudi Arabia.

2. METHODS

This was a prospective, cross-sectional study conducted between January and September 2024. The study was performed according to the principles of the Declaration of Helsinki for research involving human participants. The Research Ethics Committee of the Faculty of Dentistry, King Abdulaziz University, approved the study protocol (Approval No. 115-06-23, dated 24 December 2023).

The primary endpoints were the characteristics of OM practitioners and the current scope of OM practice across Saudi Arabia. Secondary endpoints were differences in clinical practice based on postgraduate training and other practitioner demographics. The sample size was determined using the single population proportion formula with a 95% CI, 5% margin of error, assumed prevalence of 50%, and finite population correction for an estimated 90 OM specialists in Saudi Arabia. Therefore, the minimum required sample was 73 participants.

Eligible participants included all dentists with OM postgraduate training. This included residents, specialists, and consultants actively practicing in academic, public, or private healthcare settings across Saudi Arabia. Anonymous data were collected using an online survey created using SurveyMonkey (Momentive Inc., San Mateo, CA, USA) and distributed through OM specialty groups and social media platforms (*e.g.*, WhatsApp). The survey was adapted from previously published studies [9, 13-15], and three OM practitioners validated the survey before distribution. The final questionnaire included 34 items across five domains: demographics, postgraduate training, clinical practice, referral patterns, and use of teledentistry. The survey included multiple-choice, closed-ended, and open-ended formats. Informed consent was considered implied upon submission of the completed survey.

Data were exported from SurveyMonkey and analyzed using IBM SPSS Statistics v26.0 (IBM Corp., Armonk, NY, USA). Data were summarized with descriptive statistics (frequencies and percentages), and associations between categorical variables were assessed using the chi-square test. A p-value < 0.05 was considered significant.

3. RESULTS

3.1. Participant Demographics

Of the seventy OM practitioners invited to participate, 48 completed the survey, resulting in a response rate of 68.6%. The mean age of respondents was 37 years, and the majority were female (60.4%, $n = 29$). Most respondents were Saudi nationals (95.8%, $n = 46$). Geographically, participants were primarily located in the Western (43.7%, $n = 21$) and Central (41.6%, $n = 20$) regions, with no representation from the Northern region. According to the classification by the Saudi Commission for Health Specialties (SCFHS), 39.6% ($n = 19$) were consultants, 31.3% ($n = 15$) were senior registrars or specialists, 18.8% ($n = 9$) were registrars or residents, and 8.3% ($n = 4$) were general dentists (Table **1**).

3.2. Postgraduate Training

Half of the respondents (50%, $n = 24$) had completed a clinical certificate, and 41.6% ($n = 20$) held a Master of Science (MSc/MS). Additionally, 27.1% ($n = 13$) had earned a Doctor of Philosophy (PhD), while 16.6% ($n = 8$) held a Doctor of Science (DSc/DMSc) degree. Regarding the location of training, 43.7% ($n = 21$) trained in the United States, 29.1% ($n = 14$) in the United Kingdom, and 27.1% ($n = 13$) in Saudi Arabia. Training durations varied: 58.3% ($n = 28$) had completed four or more years of training, 31.2% ($n = 15$) completed three years, and 8.3% ($n = 4$) completed two years. Certification varied among

respondents: 36.2% (n = 17) held the American Board of Oral Medicine (ABOM), 21.3% (n = 10) completed the Saudi Board of Oral Medicine and Pathology (SBOMP), 8.5% (n = 4) were Fellows of the Royal College of Surgeons of Edinburgh (FDS RCSEd), and 4.3% (n = 2) were Fellows of the American Academy of Oral Medicine (AAOM). Table **2** summarizes the postgraduate training of participants.

Table 1. Demographic characteristics of participants.

Characteristics of Participants	Percentage % (n = 48)
Age/ Mean (SD)	37 years
Gender	-
Male	39.58% (19)
Female	60.42% (29)
Nationality	-
Saudi	95.83% (46)
Non-Saudi	4.1% (2)
Region	-
Western	43.75% (21)
Eastern	6.25% (3)
Central	41.67% (20)
Northern	0% (0)
Southern	8.33% (4)
SCFHS Rank	-
General Dentist	8.33% (4)
Registrar /Resident	18.75% (9)
Senior Registrar	31.25% (15)
Consultant	39.58% (19)
Other	2.08 (1)
Academic Rank	-
Teaching Assistant	2.27% (1)
Lecturer	2.27% (1)
Assistant Professor	40.91% (18)
Associate Professor	11.36% (5)
Professor	9.09%% (4)
None	34.09% (15)
Years of Experience in Oral Medicine (Mean)	9.5 years

Table 2. Oral medicine training.

Characteristics of Participants	Percentage % (n = 48)
Postgraduate Training	-
Master of Science (MSc/MS)	41.67% (20)
Doctor of Science (DSc/DMSc)	16.67% (8)
Doctor of Philosophy (PhD)	27.08% (13)
Clinical certificate	50% (24)
Fellowship	14.58% (7)
Diploma	16.67% (8)
Other	12.50% (6)
Country of Postgraduate Training	-
United States	43.75% % (21)
United Kingdom	29.17% (14)
Saudi Arabia	27.08% (13)
Other	4.17% (2)
Duration of Postgraduate Program	-

(Table 2) contd.....

Characteristics of Participants	Percentage % (n = 48)
1 year	2.08% (1)
2 years	8.33% (4)
3 years	31.25% (15)
4 or more years	58.33% (28)
Certification in OM	-
American Board of Oral Medicine (ABOM)	36.17% (17)
Fellow of the Royal College of Surgeons of Edinburgh (FDS RCSEd)	8.51% (4)
Fellow of the American Academy of Oral Medicine (AAOM)	4.26% (2)
Saudi Board Oral Medicine & Pathology (SBOMP)	21.28% (10)
None of the above	27.66(13)
Other	12.77% (6)
Other Qualifications	-
Oral Pathology	23.81% (10)
Orofacial Pain	11.90% (5)
Periodontology	4.76% (2)
Orthodontics	2.38% (1)
None	45.24% (19)
Other	16.67% (7)

3.3. Clinical Practice

All respondents (100%) reported providing clinical care during their postgraduate training, and 91.6% (n = 44) were actively practicing OM. The majority worked in dental schools (61.7%, n = 27), followed by hospitals (50%, n = 22) and private clinics (27.2%, n = 12). The most frequently encountered conditions were oral mucosal lesions (93.3%, n = 42) and temporomandibular joint disorders (TMD) (71.1%, n = 32). Topical corticosteroids were the most commonly prescribed medications (93.1%, n = 41), followed by antifungal agents (75%, n = 33). Systemic corticosteroids were prescribed by 36.3% of respondents (n = 16). The majority of practitioners (82.6%, n = 38) reported being comfortable performing biopsies. The most common procedures performed were biopsy (88.1%, n = 37), intralesional steroid injections (85.7%, n = 36), and occlusal splint construction (78.5%, n = 33). Trigger point injections and botulinum toxin (Botox) injections were offered by 50% (n = 21) and 35.7% (n = 15) of respondents, respectively. Panoramic radiographs were the most frequently ordered imaging modality (93.3%, n = 42), followed by cone-beam computed tomography (CBCT) (60%, n = 27). Common laboratory tests included complete blood count (95.5%, n = 43) and vitamin B12 (60%, n = 27); others included HbA1c, liver function tests, and renal profiles. Table **3** summarizes the clinical practice of OM among participants.

Table 3. Diagnostic services and procedures in oral medicine clinic.

Characteristics of Participants	Percentage % (n = 48)
Setting of OM Practice	
Dental School	61.36% (27)
Hospital	50% (22)
Private Clinic	27.27% (12)
Number of Patients per week /Mean (SD)	16.6
Oral Medicine Conditions	
Oral mucosal lesions	93.3% (42)
Benign soft/hard tissue lesions	48.89% (22)
Malignant soft/hard tissue lesions	11.11% (5)
Complications after cancer therapy	20% (9)
Oral complications due to systemic diseases	42.22% (19)
TMD	71.11% (32)
Orofacial pain	42.22% (19)
Medical Co-morbidities	-
Cardiovascular disease	45.45% (20)
Endocrine disease	52.27% (23)
Rheumatologic disease	50% (22)
Gastrointestinal disease	27.27% (12)

(Table 3) contd.....

Characteristics of Participants	Percentage % (n = 48)
Hematologic diseases	18.18% (8)
Infectious diseases	11.36% (5)
Neurological diseases	9.09% (4)
Ear, nose and throat (ENT) diseases	9.09% (4)
Skin diseases	54.55% (24)
Psychiatric diseases	18.18% (8)
Respiratory diseases	2.27% (1)
Other	2.27% (1)
Medications Prescribed by OM partitioners	-
Antibiotics	9.09% (4)
Antiviral medications	9.09% (4)
Antifungal medications	75% (33)
Topical Anesthetics	20.45% (9)
Analgesics	34.09% (15)
Topical Steroids	93.18% (41)
Systemic Steroids	36.36% (16)
Immunosuppressants	15.91% (7)
Anticonvulsants	4.55% (2)
Antidepressants/ Anxiolytics	18.18% (8)
Sialagogues/Salivary substitutes	18.18% (8)
Clinical Procedures in OM	-
Intralesional steroid injections	85.71% (36)
Trigger point injections	50% (21)
Botox injections	35.71% (15)
Intra-articular injections	19.05% (8)
Biopsy using laser	26.19% (11)
Laser ablation	23.81% (10)
Low level laser treatment (photobiomodulation)	30.95% (13)
Occlusal splint construction	78.57% (33)
General dentistry (restorations, scaling, extraction.)	14.29% (6)
Dental clearance before chemotherapy/radiotherapy	30.95% (13)
Biopsy	88.10% (37)
Type of Biopsy	88.10% (37)
Incisional	76.19% (32)
Excisional	85.71% (36)
Punch biopsy	-
Diagnostic Imaging	-
Panoramic x-ray	93.33% (42)
Intraoral radiographs	35.56% (16)
CBCT	60% (27)
CT scan	17.78% (8)
MRI	42.22% (19)
Ultrasound	20% (9)
Laboratory Tests	-
Complete blood count	95.56% (43)
Basic metabolic panel	22.22% (10)
Serum ferritin	57.78% (26)
Serum folic acid	37.78% (17)
Vitamin B12	60% (27)
HbA1c	44.44% (20)
Thyroid function tests	17.78% (8)
Coagulation tests	13.33% (6)
Kidney function tests	20% (9)
Liver function tests	26.67% (12)
Random blood glucose test	15.56% (7)

3.4. Referral Patterns

Most respondents (91.1%, *n* = 41) frequently referred patients to other healthcare providers. The most common specialties for referral included dermatology (71.1%, *n* = 32), rheumatology (66.7%, *n* = 30), and otolaryngology (53.3%, *n* = 24). Conversely, 97.8% (*n* = 44) received referrals, primarily for oral mucosal lesions (100%, *n* = 48), TMD (75.5%, *n* = 32), and orofacial pain (57.7%, *n* = 25). Referring sources included general dentists (73.3%, *n* = 33), dental specialists (66.6%, *n* = 30), dermatologists (42.2%, *n* = 19), and oral and maxillofacial surgeons (40%, *n* = 18) (Table 4).

Table 4. Referral pattern to/ from oral medicine clinic.

Characteristics of Participants	Percentage % (n = 48)
Specialties to which OM patients are referred	-
Otolaryngology	33.3% (15)
Hematology	11.1% (5)
Oncology	17.78% (8)
Psychiatry	15.56% (7)
Rheumatology	66.67% (30)
Dermatology	71.11% (32)
Internal medicine	35.56% (16)
Gastroenterology	31.11% (14)
Neurology	22.22% (10)
Psychiatry	4.44% (2)
General Dentist	17.78% (8)
Dental Specialist (Endodontists, Periodontists, Prosthodontists)	46.67% (21)
OMFS	53.33% (24)
Other	4.44% (2)
Reasons for referring patients from OM to various medical specialties	-
Management of patients with medications side effects	37.21% (16)
Management of patients with diabetes mellitus	44.19% (19)
Management of patients with joint replacement	6.98% (3)
Management of patients with head & neck radiation	18.60% (8)
Management of patients on bisphosphonate treatment	20.93% (9)
Management of patients with hypertension	16.28% (7)
Management of patients with cardiovascular diseases	23.26% (10)
Management of patients with stroke	4.65% (2)
Management of patients on kidney dialysis	9.30% (4)
Management of patients with organ transplants	11.63% (5)
Management of patients with bleeding disorders	18.60% (8)
Management of patients on chemotherapy	18.60% (8)
Management of pregnant patients	2.33(1)
Prescription of antibiotic prophylaxis	2.33% (1)
Other	13.95% (6)
Specialties that refer patients to OM clinic	-
Otolaryngology	31.11% (14)
Hematology	6.67% (3)
Oncology	4.44% (2)
Psychiatry	2.22% (1)
Rheumatology	28.89% (13)
Dermatology	42.22% (19)
Internal medicine	13.33% (6)
Gastroenterology	8.89% (4)
Neurology	6.67% (3)
General Dentist	73.33% (33)

(Table 4) contd.....

Characteristics of Participants	Percentage % (n = 48)
Dental Specialist (Endodontists, Periodontists, Prosthodontists.)	66.67% (30)
OMFS	40% (18)
Reasons for referring patients from other specialties to OM clinic	-
Oral mucosal lesions	100% (45)
Salivary glands disorders	42.22% (19)
Jaw enlargements/facial asymmetry	8.89% (4)
Orofacial pain	57.78% (26)
TMD	75.56% (34)
Treatment of dental pain	8.89% (4)
Organ transplant patients	6.67% (3)
Patients with chemotherapy/radiotherapy	28.89% (13)
Patients with bleeding disorders	8.89% (4)
Pregnant patients	2.22% (1)
Medication side effects	17.78% (8)
Drug-drug interaction	4.44% (2)

3.5. Teledentistry Use

Teledentistry was utilized by 46.7% (n = 21) of respondents. It was most commonly used for follow-up visits (57.1%, n = 15) and consultations (38.5%, n = 10) to deliver presumptive diagnoses (46.2%, n = 12), explaining biopsy, lab, or imaging results (42.3%, n = 11), and managing patient care remotely (34.6%, n = 9) (Table **5**).

3.6. Training-based Practice Differences

Comparative analysis revealed that practitioners with advanced postgraduate training (*e.g.*, PhD, DSc/DMSc) more frequently managed oral mucosal lesions, TMD, and oral manifestations of systemic diseases (p = 0.030). While antifungals and topical corticosteroids were widely prescribed across all groups, systemic corticosteroids were more frequently prescribed by clinical trainees (p = 0.077). No significant differences were observed in biopsy practices (p = 0.124) or diagnostic imaging between groups (p = 0.418). However, there was a significant difference in performing other procedures, such as intralesional injections and occlusal splints, which were more common among PhD holders and certificate-trained practitioners (p = 0.002). While training duration did not significantly affect the prescription of medications (p = 0.646), biopsy practices (p = 0.507), or imaging orders (p = 0.720), participants with three or more years of training were significantly more likely to manage oral mucosal lesions (p = 0.009) and perform intralesional steroid injections (p = 0.006) (Table **6**).

Table 5. Teledentistry in oral medicine.

Characteristics of Participants	Percentage % (n = 48)
The Use of Teledentistry	-
Yes	46.67% (21)
No	53.33% (24)
Type of Dental Visits	-
Consultation	38.46% (10)
Follow-up	57.69% (15)
Other	23.01(6)
The Reason to Use Teledentistry	-
Provide presumptive diagnosis	46.15% (12)
Order biopsy/labs/imaging	15.38% (4)
Explain biopsy/lab/imaging results	42.31% (11)
Provide management	34.62% (9)
Referral	26.92% (7)
Other	15.38% (4)

Table 6. Comparison of participants according to their postgraduate OM training.

-	Postgraduate Training in OM							
	MSc/MS	DSc/ DMSc	PhD	Clinical Certificate	Fellowship	Diploma	Others	*p*-value
	N%	N%	N%	N%	N%	N%	N%	N%
Conditions encountered most frequently								
Oral mucosal lesions	89.5%	100.0%	100.0%	87.0%	100.0%	83.3%	100.0%	0.013
Benign soft/ hard tissue lesions	47.4%	50.0%	50.0%	52.2%	66.7%	50.0%	14.3%	
Malignant soft/ hard tissue lesions	10.5%	0.0%	10.0%	8.7%	16.7%	0.0%	0.0%	
Complications after cancer therapy	21.1%	33.3%	30.0%	26.1%	66.7%	16.7%	0.0%	
Oral complications due to systemic diseases	63.2%	66.7%	80.0%	43.5%	83.3%	50.0%	14.3%	
Chemosensory impairment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
TMD	63.2%	33.3%	50.0%	69.6%	33.3%	83.3%	85.7%	
Orofacial pain	47.4%	33.3%	50.0%	39.1%	16.7%	66.7%	28.6%	
Medications prescribed most often								
Antibiotics	5.6%	0.0%	22.2%	8.7%	0.0%	0.0%	0.0%	0.077
Antiviral drugs	11.1%	0.0%	0.0%	8.7%	16.7%	0.0%	0.0%	
Antifungal drugs	88.9%	83.3%	88.9%	87.0%	100.0%	100.0%	57.1%	
Topical anesthetics	11.1%	0.0%	22.2%	8.7%	0.0%	0.0%	42.9%	
Analgesics	27.8%	16.7%	33.3%	30.4%	16.7%	16.7%	42.9%	
Topical Corticosteroids	88.9%	100.0%	88.9%	91.3%	100.0%	83.3%	100.0%	
Systemic Corticosteroid	50.0%	50.0%	44.4%	47.8%	83.3%	33.3%	14.3%	
Immunosuppressive drugs	11.1%	33.3%	33.3%	21.7%	33.3%	33.3%	14.3%	
Anticonvulsants drugs	0.0%	16.7%	0.0%	4.3%	0.0%	0.0%	0.0%	
Antidepressants/ anxiolytics	22.2%	16.7%	11.1%	26.1%	16.7%	66.7%	0.0%	
Sialagogues /salivary substitutes	16.7%	16.7%	22.2%	26.1%	16.7%	33.3%	0.0%	
Biopsy offered to the patients								
Incisional soft tissue biopsy	82.4%	66.7%	90.0%	91.3%	66.7%	100.0%	85.7%	0.124
Excisional soft tissue biopsy	58.8%	66.7%	60.0%	87.0%	66.7%	100.0%	85.7%	
Punch soft tissue biopsy	82.4%	100.0%	80.0%	91.3%	100.0%	100.0%	85.7%	
Soft tissue biopsy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Hard tissue biopsy	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Other procedures provided								
Intralesional steroids injections	72.2%	83.3%	77.8%	95.5%	100.0%	100.0%	85.7%	0.002
Trigger points injections	50.0%	50.0%	0.0%	63.6%	16.7%	66.7%	42.9%	
Botox injections	44.4%	16.7%	0.0%	45.5%	0.0%	50.0%	28.6%	
Intra-articular injections	16.7%	33.3%	0.0%	18.2%	0.0%	16.7%	14.3%	
Biopsy using laser	33.3%	50.0%	11.1%	27.3%	33.3%	33.3%	42.9%	
Laser ablation	38.9%	33.3%	44.4%	22.7%	33.3%	33.3%	28.6%	
Low level laser treatment	50.0%	50.0%	44.4%	31.8%	50.0%	50.0%	28.6%	
Occlusal splint construction	83.3%	50.0%	88.9%	77.3%	66.7%	83.3%	71.4%	
General dentistry	38.9%	0.0%	33.3%	13.6%	16.7%	16.7%	0.0%	
Dental clearance before chemotherapy/radiotherapy	38.9%	0.0%	22.2%	45.5%	33.3%	83.3%	0.0%	
Biopsy	77.8%	83.3%	100.0%	90.9%	83.3%	100.0%	100.0%	
Diagnostic imaging ordered often								
Panoramic x-ray	88.9%	100.0%	90.0%	91.7%	100.0%	83.3%	100.0%	0.418
Intraoral radiographs	38.9%	66.7%	20.0%	37.5%	33.3%	50.0%	14.3%	
CBCT	66.7%	50.0%	90.0%	62.5%	83.3%	66.7%	28.6%	
CT scan	16.7%	16.7%	10.0%	29.2%	16.7%	0.0%	28.6%	
MRI	44.4%	50.0%	40.0%	54.2%	50.0%	66.7%	42.9%	
Ultrasound	27.8%	0.0%	40.0%	16.7%	16.7%	33.3%	14.3%	

4. DISCUSSION

OM has a broad scope, which includes the diagnosis and management of oral mucosal and salivary gland disorders, OFP, TMD, and oral care in medically complex patients [12, 16]. As a relatively young and evolving specialty, there is considerable variability in OM practice, regulatory standards, and clinical guidelines in different countries [17]. In Saudi Arabia, OM remains an emerging field with only a limited number of specialists. However, the exact number of practicing OM professionals in the country is unknown, as there is no centralized registry [12]. Nevertheless, the available data suggest that there are ~70 registered OM practitioners, which is significantly fewer than in North America and other developed countries [10, 12].

In this study, we collected responses from 48 OM practitioners, likely representing a substantial proportion of the national OM workforce. Most participants were female, reflecting a broader trend towards increased female representation in dental specialties, including OM [18]. Most respondents were based in the Central and Western regions, with no representation from the Northern region, a finding similar to that reported by Alqahtani *et al*., who identified a shortage of OM practitioners in the Northern and Tabuk regions [18]. Geographic heterogeneity in OM providers has also been observed in the United States and other countries [5, 19]. These geographic disparities in practitioners may contribute to uneven access to OM services and limited public and professional awareness of the specialty, potentially leading to delayed care or inappropriate referrals to non-OM providers [15, 18]. Many respondents had completed postgraduate OM training abroad, particularly in the United States or the United Kingdom, and about a quarter (27.1%) had completed the Saudi Board of Oral and Maxillofacial Pathology and Medicine (SBOMP), reflecting a growing trend toward embracing local training opportunities. Most practitioners were affiliated with academic institutions that combine clinical care, teaching, and research, consistent with previous findings [15, 19].

Participants most frequently encountered oral mucosal lesions, a pattern similar to that reported in studies from North America [15, 20]. Other international studies have reported OFP as the most common condition treated by OM specialists, followed by mucosal lesions [21, 22]. A significant proportion of patients seen by OM specialists had underlying systemic conditions, particularly endocrine and cardiovascular diseases, consistent with findings from the United States and Australia [13, 23].

General dentists made most of the referrals to OM clinics, reinforcing the unique role of OM in managing conditions that are often outside the scope of other dental specialties [23]. However, awareness of OM remains limited among medical professionals [10]. Aljishi *et al*. [3] reported higher levels of awareness among oncologists in regions with established OM residency programs, probably due to interdisciplinary collaboration during resident rotations. Therefore, expanding interdisciplinary partnerships, particularly with oncology, dermatology, and rheumatology, may help increase the visibility and clinical integration of OM. It has also been reported that many referrals to OM clinics lack a provisional diagnosis, and when provided, the diagnosis is often inaccurate [24, 25]. OM practitioners play an essential role in ensuring accurate diagnosis and appropriate patient management.

Teledentistry has emerged as a valuable support to OM practice, particularly for follow-up visits and remote consultations. Al Mohaya *et al*. [26] and others demonstrated the effectiveness of teledentistry in improving access to care, supporting the diagnosis and management of complex oral conditions, and facilitating early detection of oral cancer and systemic diseases [26-29].

We also evaluated differences in clinical practice based on postgraduate training background and observed statistically significant differences in the types of conditions managed and procedures performed according to training. Practitioners with advanced training (*e.g*., PhD, DSc/DMSc) more frequently managed mucosal diseases, TMD, and systemic-related oral conditions, and those with longer training durations were more likely to provide procedural interventions, such as intralesional injections and occlusal splints. Therefore, both the type and duration of training influence the clinical scope and procedural proficiency of OM practitioners.

Barcellos Calderipe *et al*. [30] recently highlighted the need for further studies to better define diagnostic and therapeutic protocols within the specialty to compensate for the lack of research into the procedural aspects of OM practice. Future research should therefore evaluate diagnostic and therapeutic protocols in OM across diverse clinical settings and populations. Furthermore, it would be useful to investigate the potential role of emerging adjunctive modalities (such as photobiomodulation) to optimize the evidence-based management of complex oral and orofacial conditions.

This study has several limitations. First, the use of self-reported data may have introduced recall bias, as participants probably relied on their memory rather than clinical documentation when completing the survey. Second, while the sample size was relatively small and underpowered, it included approximately 70% of the estimated national OM workforce, providing a representative overview of current practice in Saudi Arabia. However, the results may not be generalizable due to differences in healthcare systems, postgraduate training models, and the scope of OM practice in other countries. Finally, although the survey was adapted from a validated tool, the inherent limitations of online surveys, including non-response bias and variability in interpretation, may have influenced the findings.

CONCLUSION

In conclusion, this study provides the first national overview of the characteristics and clinical practices of OM practitioners in Saudi Arabia. Our findings highlight

significant regional disparities, a growing demand for OM services, and the influence of postgraduate training on practice. Strategic initiatives are now needed to enhance access, alongside the expansion of local training programs and increased awareness of OM as a vital healthcare specialty. Continued development of infrastructure and workforce capacity will be essential to ensure equitable and comprehensive oral healthcare across Saudi Arabia.

AUTHORS' CONTRIBUTIONS

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to its submission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

LIST OF ABBREVIATIONS

OM	=	Oral Medicine
SBOMP	=	Saudi Board of Oral and Maxillofacial Pathology and Medicine
ADA	=	American Dental Association
TMD	=	Temporomandibular Joint Disorders
OFP	=	Orofacial Pain

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval for this study was obtained from the King Abdulaziz University, Faculty of Dentistry Research Ethics Committee (Reference No.: 115-06-23), Saudi Arabia.

HUMAN AND ANIMAL RIGHTS

All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from the participants.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The datasets generated and/or analyzed during the current study are available from the corresponding author [A.B] upon reasonable request.

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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