

Status of OMDR specialist's in various nations and their placement at several tiers of health care systems in India-a Systematic Review

The specialist OMDR- Statum and Position in India and Worldwide.

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ABSTRACT

Research Question: In India, have oral medicine specialists been incorporated at several tiers of the healthcare system?

Dental Specialty, Oral Medicine & Radiology focuses on an oral health of the individual. The patient's ability to experience symptom relief is greatly influenced by the proper diagnosis and a thorough management strategy. If accurate diagnosis is the key to navigating the maze of hydra-headed illnesses, then Oral Medicine and Radiology becomes the principal key. This systematic review specifically focusses on the status of OMDR specialist in health care system in India. It also explores the function of an oral medicine specialist at various levels of healthcare, Appraises the significance of integrating oral medicine specialists into healthcare systems, compare the status of OMDR specialist internationally and in India, implementing strategies to incorporate oral medicine with general healthcare. We adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and electronic databases PubMed, Web of Science, Google Scholar, DOAJ, Indian science abstract and Scopus were used to Identify the relevant information. The search generated 48 papers once duplicates, non-English and grey articles were removed. Of these, 7 articles were included in the review. The state government-maintained PHCs, which serve 47.4% of the urban population with oral and maxillofacial complaints, are the first point of contact for the rural and urban patients. The studies included in this review demonstrated that oral health care taking back seat in rural and urban areas of the Indian sub-continent. Given India's multiple echelons of the healthcare system, OMDR experts were not found to be integrated besides their wide-ranging capabilities. Whereas, Oral medicine is still more known and more integrated with general healthcare in the USA than it is in India, despite being an emerging specialty. Patients are often referred to oral medicine experts in the USA from a variety of medical specialties, including dermatology, internal medicine, and

otorhinolaryngology. It is uncommon for a medical professional to send patients to an expert in oral medicine and radiology, where there is a lack of knowledge and awareness about this specialty among medical practitioners in India. Due to their expertise in a variety of inter-disciplinary domains, validating their importance and ensuring their position among several tiers of health care system would greatly benefit the overall health status of the population in India.

Keywords: OMDR specialist, Health-care system, Status, Incorporation, India

INTRODUCTION AND BACKGROUND:

Oral Medicine is a subspecialty in dentistry that deals with the oral health of an individual. It is concerned towards diagnosing and managing the oral and maxillofacial ailments, and directs oral health care for those in medically compromised situations [1]. American Dental Association (ADA) accredited this speciality as the eleventh ADA dental speciality whom are responsible for delivering oral health care for medically compromised patients and for the diagnosis and medical management of disorders or conditions influencing the oral and maxillofacial region [2]. The mainspring for any health care proficiency is the capability of diagnosing the presenting condition. Diagnosis and a comprehensive management plan play an immense role in offering a symptomatic relief to patient. If accurate diagnosis is the key to navigating the maze of hydra-headed illnesses, then Oral Medicine and Radiology becomes the principal key. This places an OMDR expert at the helm of the treatment [3]. The advancements in contemporary clinical research in the field of oral medicine and radiodiagnosis has expanded its scope [3]. The intricacy of medical issues and the provider's area of expertise are referred to as levels of health care. Providing a strong referral system, which must involve a two-way information exchange and the return of patients to those who referred them for follow-up care, is the primary duty of the health care system [4]. Levels of the health care system includes primary, secondary, tertiary. The rationale of this systematic review is that, the necessity of offering appropriate in-patient care significantly increases when the oral medicine specialists are integrated in the healthcare systems. The objective of this article is to explore the function of an oral medicine specialist at various levels of healthcare, compare the status of OMDR specialist in other countries and in India, strategies in incorporating oral medicine to general health.

Aim:

The aim of this systematic review is to review the status of OMDR specialist world-side and their position at health care system in India..

Objectives:

The objectives of this systematic review are as follows

- i) Review the several tiers of health care system in India
- ii) Explore the function of an oral medicine specialist at various levels of healthcare
- iii) Appraisal the significance of incorporating oral medicine specialists into healthcare systems
- iv) Compare the status of OMDR specialist internationally and in India
- v) Implementing strategies to incorporate oral medicine with general healthcare

Scope and limitations:

This systematic review's scope will focus on the OMDR specialist in several tiers of health care system in India and their status in several countries. Due to the fact that this is not an original study, we will adhere to strict inclusion and exclusion criteria to guarantee that the right papers are included. There won't be any restrictions on population size, geography, or social demographics.

Review:

The systematic review was conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines using SPICE framework This review has been registered with Prospero [registration id: CRD42023399810]

Databases and Search Strategy

The electronic search of PubMed, Web of Science, Google Scholar, DOAJ, Indian science abstract and Scopus was conducted using a developed search strategy from the databases' inception to February 25, 2023. The following search terms were used "public health care system in India", "OMDR speciality", "PHC and oral health care", "CHC and oral health care", "role of OMDR specialist in several tiers of health care", "value of OMDR specialist in developed countries". In addition, all relevant publications published up to February 2023 regarding oral

medicine specialty were considered.

Inclusion criteria:

- Cross-sectional studies related to Oral health care in PHC’s
- International Surveys regarding the status of OMDR specialists
- Ministry of health and family welfare reports regarding public health
- Systematic and narrative reviews on role and importance of OMDR specialty

Exclusion criteria:

- Articles not retrievable in the English language
- Grey literatures
- Short communications

Article Selection:

The search strategy found all potentially relevant publications, and a study of the references turned up no additional relevant studies. Following the exclusion of duplicates, a total of 38 articles were included. All articles were subject to full-text review by the authors, which led to inclusion of 7 articles in this systematic review which dealt with the status of OMDR specialist status in various countries and oral health care status in PHC’s in India.

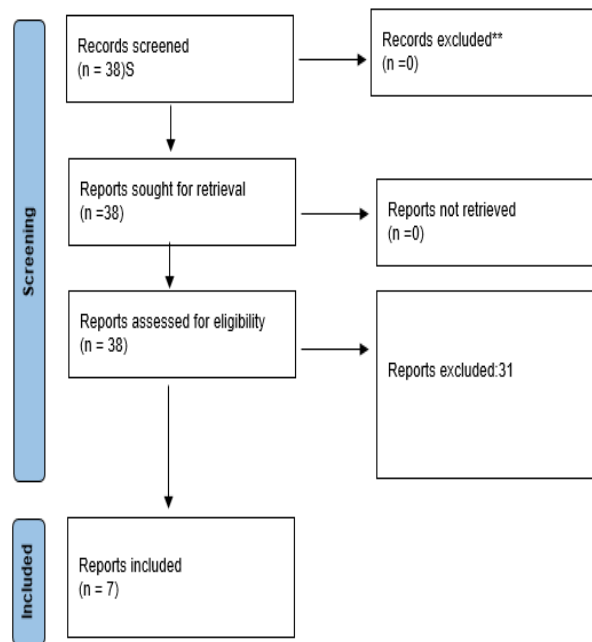


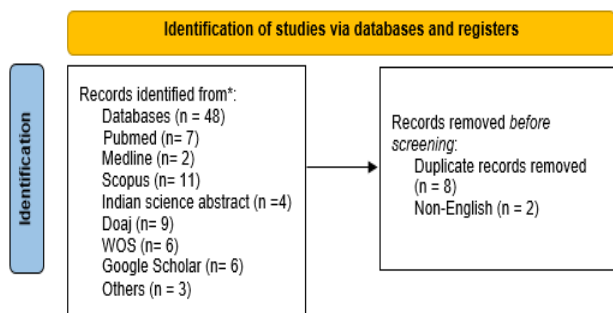
Figure 1: PRISMA flow diagram

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

Results:

THE SPECIALITY....

“The oral medicine deals with oral and maxillofacial diseases, systemic diseases that appear orally, systemic diseases that are caused by or exacerbate oral diseases, and the medical therapy of those diseases.” ADA defined Oral and Maxillofacial Radiology as the specialty of dentistry and discipline of radiology concerned with production and interpretation of images and data produced by all modalities of radiant energy that are used for the diagnosis and management of diseases [2]. In 1920, Dr. William Geis of Colombia University in the United States of America formed oral medicine as a separate field of study. The Government Dental College in Bangalore, India, set the precedent for the introduction of the Master of Dental Surgery (M.D.S.) programme in oral medicine, diagnostics, and radiography in 1970. Since then, our nation has had access to postgraduate training in OMDR for more than 5 decades [2,4]. Oral healthcare has advanced dramatically during the past few years, making remarkable strides. Reporting on oral and maxillofacial radiography is becoming significantly more vital over time and is a crucial component for treatment planning, it offers a comprehensive and extensive interpretations and diagnoses of all the components of the maxillofacial complex. Thus,



every emergency or extensive dental therapy is thought to be built around this dental diagnostic speciality [4].

Health care system:

All organisations, institutions, and resources (components) dedicated in promoting health actions are together referred to as a health system. WHO in the year 2000 included the purpose of the health care in the definition “all activities whose primary purpose is to promote, restore, and maintain health.” A health system consists of formal health services, such as the professional provision of individualised medical care, actions by traditional healers, the use of medications, whether prescribed by a provider or not, home health care for the ill, traditional public health initiatives like disease prevention and promotion, and other health-improving interventions like improving road and environmental safety [5].

Levels of Health care

Primary care level: It is the first point of contact that people, families, and communities have with the national health system, where basic medical care is offered.

Secondary care level: Secondary or intermediate level of care deals with more complex problems

Tertiary care level: More specialized level and requires specific facilities [5].

Table 1: Areas of provision of health care [5]

AREAS OF PROVISION OF HEALTH CARE		
PRIMARY	SECONDARY	TERTIARY
<ul style="list-style-type: none"> • Primary health centre 	<ul style="list-style-type: none"> • Community health centres • District hospital 	<ul style="list-style-type: none"> • Medical college and hospital • All India institutes • Regional hospital • Specialized hospital

Primary care level

The Majority of a person's health care needs throughout their lifetime, including physical, emotional, and social well-being, are met through primary health care, which is a people-centred service rather than a disease-centred one. When a patient has medical requirements or concerns, primary care is typically the first level of care they receive. It adopts a whole-of-society perspective and covers health promotion, illness prevention, treatment, and rehabilitation.

Primary Health Centre:

PHCs were designed to offer an integrated therapeutic and preventive health care services, with

a focus on the preventive and promotive components of health care. The State Government in India, in accordance with the Minimum Needs Program (MNP) or Basic Minimum Services (BMS) Program, develop and manage PHCs. A PHC must have at least 14 paramedical staff and other employees in addition to a medical officer as a minimum staffing requirement. Oral health equality is still a goal to pursue despite a substantial shift in the pattern of oral diseases being seen on a worldwide scale. The state government-maintained PHCs, which serve 47.4% of the urban population with oral and maxillofacial complaints, are the first point of contact for the rural and urban patients [5].

Pewa et al., in his study reported that the dental attendance was 72.7% among the Haryana adult

population; 52.4% in rural areas and 47.4% in urban areas are catered by PHCs [6]. Tandon et al., in his study stated that the oral health care facility was deficient, and reported that only four of the six community health centers had dentists and two of the PHCs had mobile health care units at Udupi district, Karnataka [7]. According to Kiran et al medical officers are the primary point of contact for patients

with issues relating to their oral and maxillofacial regions [47 (72.30%)] and in just a few PHCs, 18 (27.70%) medical officers reported that the dental officers were the primary point of contact for such patients [8]. All these studies have demonstrated that oral health taking back seat in rural and urban areas of the Indian sub-continent.

Table 2: Status of oral health in PHC in India

S/N	Authors	Year	Region	Sample size	Study design	Study Aim	Outcome
1	Tandon et al. [7]	2012	Udupi Karnataka	–	Cross-sectional study	To assess the utility of Mobile Dental Clinic to provide oral health care services to the rural population	The oral health-care facility was lacking, also study reported that only four of the six community health centers had dentists and two of the PHCs had mobile health-care units at Udupi district, Karnataka
2	Kiran Iyer et al. [8]	2019	Banglore, India	65 PHC	A situational Analysis	the aim of the study was to conduct a situation analysis at PHCs to understand resource availability and oral health seeking behavior from perspective of medical officers of Bangalore City, India.	Among 65 PHCs, about 18 PHCs had dental officers posted. In those 18 PHCs only 2 were maintained by the state government and others by Private dental college. In the 65 PHC's, only one PHC maintained a separate register for

							<p>dental complaints, whereas 48 of them had maintained a combined register for both general and oral complaints. With regard to the management of tooth-related complaints, about 48 of medical officers reported that they dispense the patients affected by providing antibiotics and pain killers (analgesics)</p>
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Oral cancer is considered as a foremost public health issue in the Indian sub-continent, where it lines among the top three cancer in the country. The highest incidence of usage of areca nut-based tobacco products among males was found in Madhya Pradesh, followed by Gujarat, Maharashtra, and Delhi, according to the Global Adult Tobacco Survey (GATS) carried out in India in 2009–2010 [9]. The 2nd highest incidence of oral cancer was observed among females in the northeast region of the country. The northeast is increasingly where cancer cases and fatalities are concentrated [9]. The reasons for morbidity associated with OPMD's and oral cancer are unawareness of the patient or the physician, misdiagnosis of the potentially malignant disorders, lack of availability to healthcare amenities, social priorities, deferred definitive treatment and postponement in seeking care leading to diagnosis at an advanced stage.

The early diagnosis and an appropriate intercession of oral potentially malignant disorders is extremely crucial as it may reduce the progression rate of these conditions to aggressive cancer. The early

recognition of oral potentially malignant disorders is of extreme importance. The tobacco use is high in rural and urban areas when compared to city levels those population are more prone for PMDs. Operational guidelines for PHC centres framed by National health Mission & Ministry of Health and Family Welfare recommended the assured dental service [pain management, topical fluoride application, ART -provided by medical officers]. Essential dental services [screening and appropriate management/referral of oral cancer including non-healing ulcers and Potentially Malignant Oral Lesions, pulp therapy, scaling extraction and others] are considered as additional service available only when dentists were available, rather than an assured one [10]. The oral physician or in the Indian context the oral medicine and radiology specialist are well-trained in diagnosing the oral lesions at the early stage [11]. The early diagnosis of oral precancerous and cancerous lesions is the principal key and an OMDR specialist is the forerunner. Other than diagnosing and intervening the PMD's the most important duty at primary care level is referral of the patient to the other levels of care. Referral is an integral part and a critical

component of the current medical practice, defined as the taking over care from one healthcare provider to another, if practised efficiently, it can contribute to high standards of care by improving patient outcomes and decreasing costs through optimal use of medical services. Often oral manifestations are the first sign or the most significant sign of systemic disease, OMDR specialist are the one who is more familiar with the systemic conditions as they are well trained in managing the medically compromised patients as well, OMDR specialist play a significant role in arriving at appropriate diagnosis and correct referral for the treatment.

The community's general health will advance in India if an appointed dental officer is an OMDR specialist at the primary care level.

Secondary care level

Secondary health care, which is typically given in CHC & District hospitals, is the specialised treatment and assistance provided by specialized medical professionals and other health professionals to patients who have been referred to them for specialised expert care.

Community Health Centre:

It provides facilities for specialized consultations as well as acting as a referral centre for PHCs. Under the MNP/BMS programme, the State Government establishes and maintains community health centres (CHCs) in areas with a population of 120 000 people and in mountainous, remote, and tribal areas with a population of 80 000. According to minimal standards, a CHC must have four medical professionals on staff, including a surgeon, physician, gynaecologist, and paediatrician, as well as 21 paramedical and support workers. With a surgical theatre, X-ray room, labour room, and laboratory equipment, it offers 30 beds. When compared to PHC, CHC provides all essential dental services [5]. In addition to 4 medical specialists integrating the OMDR specialist in the secondary care level will benefit the community in following ways, 1) Diagnosis of facial lesions, management of oral manifestation of systemic disease, screening of arthritis, management of Oro-facial pain, TMJ disorders are under the scope of OMDR specialist, patient complaints pertaining to the above-mentioned disorders are well accomplished and treated by these specialists. 2) promotes patient advocacy inside the healthcare system to provide cost-effective care through service coordination. 3) The OMDR specialist is given the authority to establish communications with other medical colleagues in

order to properly recommend cases from them. All these networking will improve appropriate functioning of the patient's health care system. It is time to broaden the focus to include early detection of oral precancer and cancer, drug abuse counselling, early detection of diabetes and other systemic diseases via oral manifestations at the CHC level, given the rising burden of non-communicable diseases.

Tertiary care level

Tertiary care has been defined as highly specialised medical care, typically delivered over a long period of time, involving sophisticated diagnostics, difficult operations, and treatments carried out by experts in cutting-edge facilities. Depending on the size and resources available in the country, tertiary care may be offered at the regional or national level. Institutions providing tertiary healthcare are a crucial part of any nation's healthcare system. Their contribution towards improving the community's specific and general health parameters is enormous, encompassing everything from sophisticated, specialised clinical care to supervision, training, developing recommendations, and quality assurance. Health practitioners in primary and secondary care can refer patients to tertiary care facilities, and this type of care is typically given inpatient-based. The management of cancer, palliative care, transplantation, plastic surgery, and other sophisticated medical and surgical procedures are a few examples of tertiary care services [5].

Counseling head and neck cancer patients as soon as they are diagnosed with malignancies, advising them on the best course of treatment, and directing them to the right facilities where they can receive the necessary care, treating the various side effects of radiotherapy and chemoradiotherapy, such as radiation mucositis, xerostomia, and oropharyngeal candidiasis, with novel targeted therapies, topically application of stannous fluoride to prevent radiation caries, and recommending appropriate mouth, tongue, and jaw exercises to enhance their quality of life, lessening depression, and prevention of trismus are all areas in which the OMDR specialists play a significant role in the cancer hospitals [12].

In palliative care:

The goal of the specialised field of medicine known as palliative care is to lessen and prevent patients' suffering. Due to the patterns of disease recurrence and the unfavourable effects of treatments, patients with oral cancer frequently experience a complex and prolonged course of illness that is characterised by

intervals of health and symptom-free periods interspersed with episodes of serious illness, debility, and a wide range of physical and psychological symptoms, such as pain, dysphagia, disfigurement, weight loss, depression, and xerostomia. Thus, palliative oral care emphasises methods for preserving resident quality of life and oral cavity comfort. Palliative care's objectives include providing high-quality care that is free of infection and pain, addressing dry mouth, and keeping teeth free of food debris, dental calculus, and plaque. Palliative care required in the conditions include, orofacial pain, oral mucositis and stomatitis, Xerostomia, Nausea & Vomiting, candidiasis, nutritional and taste disorders etc., The palliative care should focus on the elimination of these problems and appropriate actions must be instituted to alleviate symptoms, minimize pain and suffering, and provide

symptom control [13]. Other areas: Management of oral manifestation of dialysis & transplantation are under the scope of OMDR specialist.

Given India's multiple echelons of the healthcare system, OMDR experts were not found to be integrated besides their wide-ranging capabilities. Whereas, Oral medicine is still more known and more integrated with general healthcare in the USA than it is in India, despite being an emerging specialty. Patients are often referred to oral medicine experts in the USA from a variety of medical specialties, including dermatology, internal medicine, and otorhinolaryngology. It is uncommon for a medical professional to send patients to an expert in oral medicine and radiology, where there is a lack of knowledge and awareness about this specialty among medical practitioners in India (Table 3).

Table 3: status of OMDR specialist in various countries

S/N	Authors	Year	Region	Sample size	Study design	Study Aim	Outcome
1	E T Stoopler et al. [17]	2011	USA	200(representing 40 countries and 6 continents)	Cross-sectional study	To define the current status of oral medicine practice internationally	<p>I. 2 most common setting for oral medicine practice were hospital and dental school</p> <p>II. Roughly half of the oral medicine specialists are participants in multidisciplinary oncology clinics/ services, while a majority are involved in diagnosing and managing different oral and maxillofacial diseases in patients</p>
2	Sun M et al. [18]	2020	USA	6024 (Outpatients in OM medical practices)	Retrospective study Duration- 5 years	To characterize oral medicine (OM) clinical practices at the University of Pennsylvania (Penn) and to	This study reported that of 6,024 outpatient oral medicine visits, the most diagnosed conditions were those related to orofacial

						determine the importance of OM clinical services	pain (46.63%), followed by benign oral mucosal diseases (35.51%). Additionally, the authors stated that the total number of patients who received services at oral medicine clinics was indeed higher
3	AI Spielman et al. [20]	2018	New York USA	-	Review	The purpose of this review was to argue for training in oral medicine not as a postgraduate dental specialty, rather, as a postgraduate medical specialty	In the UK, pursuing a medical and dental degree together shortens oral medicine training from 5 to 3 years. Given that medical approaches to oral conditions are on the rise and that an extensive medical background is required in the field of oral medicine, it has been suggested that oral medicine be classified as a subspecialty of medicine, rather than dentistry in the USA
4	Adithya A et al. [21]	2014	India	266 medical practioners	Survey	This survey was conducted to assess the perceived need and availability of dentists and specialists in Oral Medicine and Radiology by medical practitioners in Pune, Maharashtra	Medical practitioners do perceive a need of dental practitioners for referring various oral problems. However, there seems to be little awareness among the medical practitioners regarding the expertise and availability of specialists in Oral Medicine and Radiology. Very few referrals of oral mucosal lesions are done to the dentists, as a majority of them are done to general dental practitioners rather than to an Oral Medicine and Radiology specialist
5	Bindhakhi I M et al. [15]	2021	Saudi Arabia	-	Review	This aim is to focus on the need for a multidisciplinary	I. The prevalence of oral health conditions in Saudi Arabia

						<p>y approach in modern healthcare systems that implements the oral medicine specialty</p>	<p>appears to be high yet is accompanied by a scarcity of oral medicine specialists</p> <p>II. Furthermore, numerous studies have revealed that physicians from different specialties in Saudi Arabia lack training in oral health and possess an insufficient awareness of the oral medicine specialty.</p>
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Discussion:

Dentistry is no longer the study of teeth, but rather is an interdisciplinary approach to patient care in the present period due to recent developments in dentistry, medicine, and basic science research. The intersection of oral medicine and dentistry is crucial for medical professionals when designing their diagnostic and therapeutic strategies. The field of oral medicine focuses on conditions that affect the oral cavity, face, and adjacent structures, including orofacial symptoms of systemic diseases [14].

The diagnosis and non-surgical management of disease/disorders of the oral and para-oral structures are under the broad field of oral medicine and radiology. Being in such a novel position as a bridge between medicine and dentistry, the field of oral medicine and radiology has far more potential to strengthen the public health care system than it now does.

Oral medicine is still more known and more integrated with general healthcare in the USA than it is in India, despite being an emerging specialty. Patients are often referred to oral medicine experts in the USA from a variety of medical specialties, including dermatology, internal medicine, and otorhinolaryngology. A practical oral healthcare education and hands-on experience are currently

mandated to be included in the curricula of allopathic family medicine and emergency residency programmes in the USA. The classification of oral medicine as a subdiscipline of medicine rather than dentistry in the USA has been suggested due to the development in medical approaches to oral health problems and the considerable medical training needed in the subject. Furthermore, these oral health concerns have received increased importance as a result of the Institute of Medicine's (IOM) report [15].

Unfortunately, due to ignorance and extortion, oral medicine and radiology in India have become a discredited branch of dentistry [16]. It is uncommon for a medical professional to send patients to an expert in oral medicine and radiology, in contrast to other dental specialists. Most of the medical practitioners overcome a fair percentage of patients who have oral health issues and feel the need to refer them to dentists and dental experts. But, scepticism regarding the expertisation and accessibility of dental specialists predominates. The situation is particularly unfortunate when it comes to the specialty of oral medicine and radiology, where there is a lack of knowledge and awareness about this specialty among medical practitioners [16].

Stoopler et al., in his study included physicians in oral medicine from throughout the world. The authors noted that the majority of oral medicine experts work with patients to diagnose and treat a variety of oral and maxillofacial illnesses, while almost half of them

participate in multidisciplinary oncology clinics and services. Hospitals and dental schools are currently the most typical places in which oral medicine experts were found [117].

Sun et al. conducted a study at the University of Pennsylvania, for evaluating the services provided by the oral medicine specialist and reported that of 6,024 outpatient oral medicine visits, the most commonly diagnosed conditions were those related to orofacial pain (46.63%), followed by benign oral mucosal diseases (35.51%) [18].

According to the aforementioned observations, developed nations have more widespread awareness of and integration of oral medicine with general healthcare than India. Integration of oral medicine into healthcare system of India can be accomplished by implementing the following strategies i) The best method to ensure that medical, and other health care professional groups recognise the need for oral medicine specialists in healthcare systems is to establish channels for service reimbursement. ii) MCI and residency programmes could advance the field by adding the speciality of oral medicine to the present medical curriculum and enabling medical specialty residents to rotate through oral medicine departments. iii) For the purpose of providing care to patients with a complex range of morbidity-related needs, oral medicine specialists should be required to regularly collaborate with primary care physicians, dental professionals, and many other healthcare professionals - Specialized in both clinical dentistry and medicine, oral medicine practitioners play a crucial and distinctive role in bridging the gap between oral and systemic health. iv) Establishing oral and maxillofacial radiology in tertiary care facilities as a separate discipline as oral and maxillofacial surgery.

Due to the variation in the physical constitution of people, dental and craniofacial radiographs are an essential assessment tool in a race, gender, and stature. The development of contemporary technologies like CT, Micro CT, MRI, and OPG has made CBCT useful in forensic odontology [19].

CONCLUSION

Due to their expertise in a variety of inter-disciplinary domains, such as dermatology, infectious diseases, internal medicine, rheumatology, and pharmacology, OMDR specialists are highly qualified and thus the healthcare system in India would benefit greatly from the entrance of new oral medicine specialists who can provide high-quality care and better access to oral health. There has already been some recognition of

the value of the specialty of oral medicine in healthcare systems in a number of contexts, thus validating its importance as a field and ensuring its place among medical centers and educational institutions around the world.

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