



(RESEARCH ARTICLE)



## Knowledge and awareness regarding various dental specialties among the medical fraternity: A cross-sectional study

Prashanth Shenoy, Al faleela fauzal, Rachana V Prabhu, Laxmikanth Chatra, Veena K.M, Prathima Shetty and Saquib khan

*Department of Oral Medicine and Radiology, Yenepoya Dental College and Hospital, Yenepoya deemed to be University, Mangalore (575018), Karnataka, India.*

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### Abstract

**Background:** Integration between medical and dental care is crucial but often lacking in many healthcare systems. Awareness and knowledge about dental specializations among the medical fraternity are essential for proper referral and treatment of oral conditions, which often have systemic implications. This study aims to assess the knowledge and awareness of various dental specialties and conditions among the medical fraternity in a medical college setting

**Methodology:** A cross-sectional questionnaire survey was conducted at Yenepoya Medical College and Hospital, Mangalore, with ethical clearance. A sample of 85 participants, including interns, postgraduates, and faculty, was randomly selected. A validated, close-ended questionnaire with two sections assessed basic knowledge of dental courses and awareness of dental specialties related to specific oral conditions. Data were analyzed using frequency distribution, percentages, and Pearson's Chi-square test.

**Results:** All 85 participants responded (100% response rate). Faculty showed the highest correct response rates regarding dental specialties, followed by postgraduates and interns. Significant gaps in knowledge were observed, particularly among interns and postgraduates, in identifying appropriate dental specialties for various oral conditions. Chi-square analysis revealed significant differences in knowledge levels across the participant groups ( $p < 0.05$ ).

**Discussion:** The study highlights a substantial lack of awareness and understanding of dental specialties among medical interns and postgraduates compared to faculty members. This gap may hinder proper referral practices and patient care, emphasizing the need for targeted educational interventions.

**Conclusion:** There is a need to enhance the knowledge of dental specialties among medical professionals, particularly interns and postgraduates. Integrating dental education into the medical curriculum at both undergraduate and postgraduate levels could bridge this knowledge gap, ultimately improving patient care and interdisciplinary collaboration in healthcare.

**Keywords:** Dental Specialties; Medical Fraternity; Awareness; Knowledge; Oral Health; Referral Practices; Interdisciplinary Integration.

\* Corresponding author: Al faleela fauzal

## 1. Introduction

An integral part of a comprehensive healthcare team is the dental and medical fraternity. The first contact for most patients is usually with the medical fraternity in most diseases, including certain oral conditions. There is a clear lack of integration of health care and dental care in our country, which requires the attention of both professions.[1]

Even though there has been an explosion of knowledge all around us which has led to many specializations in dentistry awareness of the specializations in dentistry among the public and medical fraternity in India is very low [2]. The vast majority of patients who should benefit from dental services or be referred for their various dental ailments are unable to assess the services due to poor awareness and knowledge because of which patients suffer. [3]

Proper knowledge of oral diseases is crucial among the medical fraternity due to the following reasons a large number of systemic diseases have oral manifestations, many drugs are associated with oral adverse drug reactions. Facial and TMJ pain, and oral mucosal lesions noted in the routine practice are being referred to a general dentist and not to any specific specialty. It is also important to increase their interest in screening and appropriately guiding patients with different dental conditions to specialists. [1,4,5]

The goal of the study is to assess the awareness and knowledge of a specialty and various dental conditions and its related dental specialties that treat them, among the medical fraternity of medical college.

## 2. Materials and methods

The study was conducted at Yenepoya Medical College and Hospital, part of Yenepoya deemed to be University, Mangalore, following ethical clearance from the institutional ethical committee. A cross-sectional questionnaire survey was implemented to evaluate the knowledge and awareness of dental specialties among the medical fraternity. A simple random sample of 85 participants was drawn, comprising 28 interns, 28 postgraduates (PGs), and 29 faculty members. The survey utilized a specially designed, close-ended questionnaire validated by experienced subject experts for content accuracy.

The questionnaire featured two sections: the first assessed basic knowledge about dental courses and specialties through three questions, and the second evaluated awareness of appropriate referrals for specific oral conditions through fourteen questions. Along with the questionnaire, participants received an information sheet and an informed consent form. Informed consent was obtained from all participants after explaining the study's purpose, and responses were collected ensuring participant anonymity. Participants were encouraged to answer all questions.

All 85 questionnaires were completed achieving a 100% response rate. The study was conducted over seven months, from March to August 2023. Data were tabulated using Microsoft Excel 2010, and frequency distributions and percentages were calculated. The statistical analysis was performed using Pearson's Chi-square test to compare responses among the different study groups regarding awareness of dental specialties, with the level of significance set at  $p < 0.05$ .

## 3. Results

The distribution of the 85 study participants according to gender and qualification is presented in Table 1

**Table 1** Gender and qualification of the study participants

Qualification	Gender		Total
	M	F	
Intern	14(50%)	14(50%)	28(32.9)
PG	17(60.7%)	11(39.3%)	28(32.9)
Faculty	20(69%)	9(31%)	29(34.1)
		Total	85

**Table 2a** Basic knowledge of dentistry among Intern, PG, and faculty

Basic awareness and knowledge regarding dentistry	Response Group	Years			
		3	4	5	?
How many years is the UG dental course	Intern		11(39.3%)	17(60.7%)	
	PG		5(17.8%)	23(82.1%)	
	Faculty			29(100%)	
How many years is the PG dental course	Intern	26(92.9%)	1(3.6%)	1(3.6%)	
	PG	28(100%)			
	Faculty	29(100%)			
Basic knowledge of dentistry		Response Group			
			yes	no	
Do they know about dental specialty?	Intern		28(100%)		
	PG		28(100%)		
	Faculty		29(100%)		
If yes which are they?					

When asked about the duration of the UG dental course, a significant portion of interns (39%) and some PGs (18%) incorrectly stated the duration as 4 years. However, the majority of interns, PGs, and all faculty correctly identified it as a 5-year course. Regarding the PG dental course duration, 93% of interns, 100% of PGs, and faculty members provided the correct response of 3 years. The response is presented in Table 2a.

**Table 2b** Basic knowledge among the participants about dental specialty

Various dental specialties - If yes which are they (multiple responses were given)	Intern	PGs	Faculty
Orthodontics	92%	95%	95%
Oral medicine and radiology	78%	80%	85%
Periodontics	75%	80%	90%
Oral and maxillofacial surgery	92%	90%	95%
Pedodontics	67%	80%	94%
Prosthodontics	85%	88%	95%
Oral Pathology	60%	70%	80%
Public health dentistry	78%	95%	95%
Conservative dentistry	50%	50%	85%
Implant	50%	50%	30%
Laser dentistry	14%	14%	14%
Rotary endodontics	10%	10%	10%

Faculty members consistently show a higher percentage of basic knowledge across most specialties compared to interns and PGs. All participants were aware of dental specialties, with orthodontics being the most recognized among them. However, there was less awareness of conservative dentistry and oral pathology, especially among interns and PGs. There is a noticeable drop in knowledge and considered as a specialty among interns and PGs in specialized areas like Implant, Laser Dentistry, and Rotary Endodontics. Refer to Table 2b.

**Table 3** Knowledge about various dental specialties that deal with their dental condition

Questionnaire	Specialties Respondent groups	Correct response	Wrong response	Chi <sup>2</sup> test	p- value
Diagnosis and management of oral mucosal lesion	Intern	14	14	15.5434	0.000
	Pg	27	14		
	Faculty	14	2		
Diagnosis and management of oral manifestation of systemic diseases	Intern	15	13	13.8755	0.000
	Pg	20	8		
	Faculty	28	1		
Imaging of teeth and oral and maxillofacial region	Intern	21	7	5.0911	0.078
	Pg	27	1		
	Faculty	24	5		
3D imaging and printing of post-surgical prosthesis	Intern	14	14	4.1068	0.1283
	Pg	17	11		
	Faculty	22	7		
Decayed/tooth ache in children	Intern	20	8	6.5978	0.0369
	Pg	22	6		
	Faculty	28	1		
Teeth which are malaligned and needs to be corrected	Intern	20	8	2.0643	0.3562
	Pg	23	5		
	Faculty	25	4		
Teeth which are decayed and needs to be removed	Intern	12	16	14.392	0.000
	Pg	24	4		
	Faculty	27	5		
Fracture of the jaw	Intern	15	13	14.392	0.000
	Pg	24	4		
	Faculty	27	2		
Diseases related to the gums	Intern	18	10	7.7972	0.0202
	Pg	25	3		
	Faculty	26	3		
Replacement of the missing teeth	Intern	17	11	11.096	0.003
	Pg	19	9		
	Faculty	28	1		
Fabrication of the maxillofacial prosthesis	Intern	18	10	4.5371	0.1037
	Pg	18	10		
	Faculty	25	4		
Treatment of cleft lip and palate	Intern	18	10	10.692	0.004
	Pg	18	10		

	Faculty	25	1		
Restoration of the carious tooth	Intern	8	20	32.431	0.000
	Pg	22	6		
	Faculty	28	1		
Conducting oral health care programs	Intern	26	2	0.3879	0.8239
	Pg	27	1		
	Faculty	28	2		

These results indicate varying levels of knowledge and understanding among interns, PGs, and faculty across different dental specialties. Faculty members demonstrated the highest correct response rates, followed by PGs and then interns. Significant differences were observed in the responses related to diagnosing and managing oral mucosal lesions, oral manifestations of systemic diseases, decayed teeth in children, fractures of the jaw, diseases related to gums, replacement of missing teeth, and restoration of carious teeth. These findings emphasize the importance of targeted education and training to improve awareness and proficiency in dental specialties among medical professionals. The response is presented in (Table 3)

A Chi-Square Analysis was done the chi-square tests showed significant differences in responses among the three participant groups, indicating varying levels of knowledge and understanding. (Table 3)

#### 4. Discussion

It was anticipated that the current study, which set out to ascertain dental awareness and knowledge within medical fraternities, would provide additional insight into the significance of preserving tight linkages between the medical and dental teams. When asked about their knowledge of the various dental specialties, 72% of the sample said they were familiar with periodontics, oral and maxillofacial surgery, oral medicine, and radiography, and the least awareness was known about conservative dentistry and oral pathology. Additionally, 28% of the sample as a whole recognized rotary endodontics and implants as a specialty.

In the current study, it was shown that 78% of participants knew that oral medicine and radiology were specializations. 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.

Of 100 study participants, only 39% were aware of the oral medicine specialty in dentistry, according to a survey by Bokkasam et al. [17] involving medical practitioners. Therefore, we conclude that medical interns and PGs have a limited understanding of oral medicine and radiology as specialty areas.

In the current study, when it came to kid toothaches or decay, 71% of interns, 78% of PGs, and 97% of faculty chose to refer patients to pedodontics; the remaining interns and PGs chose to refer patients to orthodontics, conservative dentistry, and periodontics.

Only 92% of interns, 95% of PGs, and 97% of faculty members in our study knew that orthodontics was a dental specialty. But because of the misalignment of the teeth and the necessity for correction, 71% of interns, 82% of PGs, and 86% of faculty chose orthodontics as their specialty, while the remaining interns and PGs chose prosthodontics and periodontics as their referral.

A cross-sectional study using a questionnaire was previously carried out by KO Adegbite et al. [6] to evaluate medical students' awareness of the impact of malocclusion on overall welfare and their knowledge of orthodontics. Eighty-five medical students participated in the survey.

Merely 45.9% of the participants possessed knowledge of the term "orthodontics," and merely 20% accurately responded that orthodontics deals with malocclusion and its treatment. Providing interns and PGs with a foundational understanding of orthodontic treatment aspects will pique their interest in the field and enhance their capacity to refer patients effectively when necessary.

To gauge general practitioners' knowledge and awareness of oral and maxillofacial surgery as a specialty, Ali et al. [8] undertook a study. Of those who know about dental specialties, 84% were aware of oral and maxillofacial surgery. Of the participants, only 41.6% were aware of the range of therapy techniques within this specialization. The teeth extraction was the sole procedure that most medical professionals were aware was the domain of the oral and maxillofacial surgeon. Similarly, many medical professionals think that orthopedic and general surgery handle facial fractures and facial abscesses, respectively.

In our survey, 93% of interns, PGs, and faculty members were aware of OMFS; nevertheless, they knew less about the procedures inside OMFS. Only 43% of trainees, 85% of PGs, and 83% of faculty members indicated that oral and maxillofacial surgery was necessary for teeth that needed to be extracted due to decay.

In addition, only 54% of interns, 86% of patients, and 93% of faculty members indicated maxillo-facial surgery as the recommended course of treatment for jaw fractures; the remaining patients chose orthodontics, conservative dentistry, and prosthodontics.

When asked about the treatment of cleft lip and palate, 64% of interns and PGs correctly identified oral and maxillofacial surgery, as did 97% of faculty members. Thus, we can conclude that interns and PGs had limited awareness of the numerous therapies available in oral and maxillofacial surgery.

Periodontics was recognized by 75% of respondents as a specialty. Only 64% of interns, 89% of PGs, and 89% of faculty chose to refer patients to periodontics after learning about the specialty's treatment of gum diseases; the remainder of the fraternity chose to send patients to other specialties.

The prosthodontic specialty handles the replacement of lost teeth and the creation of maxillofacial prostheses. 61% of trainees and 67% of PGs in the current survey chose to be sent to prosthodontics. Furthermore, when asked about the fabrication of prosthesis, 64% of PGs and 64% of interns provided inaccurate answers, citing maxillofacial, orthodontic, and oral surgery. In a similar vein, according to Srinidhi et al. [13] study, 95.7% of UG, 93.8% PG, and 80.6% PG diploma holders selected prosthodontics as their preferred dental specialty.

The interns and PGs had the least awareness of conservative dentistry. Conservative dentistry treats carious teeth by restoration, although only 28% of interns and 78% of PGs chose to be referred to the appropriate specialty in conservative dentistry. 98% of the faculty members were well-versed in conservative dentistry techniques.

As a result, we must raise awareness of the specialty and the dental diseases it treats. The intern, faculty, and PGs had excellent knowledge and understanding of how to run oral health care programs, and they provided accurate answers when asked about public health dentistry. Interns and PGs showed the least awareness and knowledge of oral pathology, with 50% of interns choosing oral pathology for the diagnosis and treatment of oral mucosal lesions.

Numerous people chose the specialties of laser, implant, and rotary endodontics incorrectly in the current survey. Therefore, there is the least awareness and knowledge of the specialties that carry out these procedures. This may have resulted from the respondents' limited exposure to dentistry, which prevented them from completely comprehending the varying roles played by the many subspecialties in this area. Similar research by Azodo et al. [5] also showed that medical professionals were unaware of the different dental specialties.

### *Limitations*

- Small Sample Size: Limited to 85 participants, which may not provide robust data.
- Single Institution Focus: Conducted at one medical college, limiting broader applicability
- Cross-Sectional Design: Captures data at one point in time, lacking insights into changes over time.
- Questionnaire Scope: Possible gaps in the coverage of all dental specialization aspects.

## 5. Conclusion

Medical personnel play a vital role in health promotion and preventive information dissemination at the community level. It is, therefore, important that their oral knowledge is good and their oral health behavior conforms to the population's expectations. As they come across patients in their practice. Our study also demonstrated that medical interns and PGs have less knowledge about dental specialties, while faculty are better informed about various dental specialties. It is the present need to spread awareness among the interns and PGs about various specialties of dentistry to ensure proper referral practices, and it is for the utmost patient care as well, since many systemic diseases also have dental manifestations. So oral health also needs to be taken into consideration, which will increase patient care. So the inclusion of dental education in both undergraduate and postgraduate medical curricula appears to be a promising solution to this unnecessary knowledge gap between the medical and dental professions

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare that they have no conflict of interest.

### *Statement of ethical approval*

The present research work does not contain any studies performed on animal/human subjects by any of the authors.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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