

Knowledge and Awareness about Maxillofacial Prosthesis as a Mode of Rehabilitation amongst the Medical Practitioners in South West Bangalore - A Questionnaire Study

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Abstract: *The carcinoma of orofacial region is one of the most prevalent site of occurrence. The squamous cell carcinoma constitutes approximately 90 - 95 % of all the reported cases of the orofacial cancer. Since surgery remains the core treatment modality for the treatment of such conditions it is often accompanied by complications. Often the restoration in these cases should ideally be carried out as soon as possible to minimise psychological trauma but it been observed that most of the patient's in India suffering with such defects do not get referred to a maxillofacial prosthodontist and remain untreated. Primary cause for this may or may not be the lack of awareness among the medical practitioners like surgeons, ophthalmologists, ENT surgeons, plastic surgeons to treat such patients for the residual defects after surgery. This descriptive study was designed to be conducted amongst the institutional and private medical practitioners of south - west Bangalore, Karnataka. A self - administered questionnaire in simple English language was formulated and distributed between the medical practitioners with full instructions after obtaining their prior consent on goggle form service. The questionnaire contained a total of 12 questions. 10 questions were knowledge and awareness based, regarding awareness about maxillofacial prosthodontics as a specialized branch, which deals with the replacement of the missing facial structures. Statistical analyses was performed using IBM SPSS Statistics for Windows, Results on categorical measurements were presented as Frequency (Percentage). Inferential statistics like Fischer Exact test/Chi - square test was used to check association between the variables. The significance of level adopted was 5%. The study projects that despite a satisfactory (92%) awareness of the medical practitioners about the field of prosthodontics, the referrals or rehabilitation rate of patients with surgical excision is very low. The survey indicates a need to conduct awareness activities amongst the medical practitioners and patients undergoing such treatments. An initiative to join hands to form a multidisciplinary team is required to improve the health related quality of life of individuals with maxillofacial defects.*

Keywords: maxillofacial Prosthodontics, maxillofacial defects, maxillofacial prosthesis

1. Introduction

The carcinoma of orofacial region is one of the most prevalent site of occurrence. The squamous cell carcinoma constitutes approximately 90 - 95 % of all the reported cases of the orofacial cancer.¹ According to World Health Organization statistics, individuals of the Indian subcontinent have the highest prevalence of orofacial cancer which may lead to surgical resection. The majority could be related to the consumption of the tobacco in smoke or smokeless form (tobacco chewing). Since the mainstay of treatment method includes the local or regional surgical resection, radiation therapy or the combination of both.²

Since surgery remains the core treatment modality for the treatment of such conditions it is often accompanied by complications. These include alteration in the clarity of speech, mastication and swallowing. This is related largely to loss of the mobile portion of the tongue, lack of clarity of articulation and bolus transport and mastication. The other sequelae of surgical treatment are related to external appearance and wound contracture. Surgical resection are often mutilating, disfiguring and may deeply affect self - image of patients. As said by St. Jerome "face is the mirror

of mind". Any such defects of the face and associated structures therefore have important psychosocial implications on affected patients.³ Craniofacial /maxillofacial defects lead to severe depression that often require rehabilitation.⁴ Patients who have been traumatised in an accident and / or have had surgical removal of diseased tissues requires restoration of the function and aesthetics. Restoration in these cases should ideally be carried out as soon as possible to minimise psychological trauma.⁵ Surgical reconstruction is considered to be the primary treatment of choice in such cases, although, not all the defects are treatable by surgical intervention.⁶ It depends on multiple factors like the size, location of the defect, the loss of vital anatomical structures and general debilitation of the patient.⁷ An available treatment option for such cases is the prosthetic rehabilitation of the defects.

According to glossary of prosthodontics term (GPT - 9) maxillofacial prosthesis can be defined as "any prosthesis used to replace part or all of any stomatognathic and/or craniofacial structures." Maxillofacial prosthetics can be defined as "the branch of prosthodontics concerned with the restoration and/or replacement of stomatognathic and

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craniofacial structures with prostheses that may or may not be removed on a regular or elective basis.⁸ Maxillofacial prosthodontists are individuals who have the knowledge and skill set to provide the service of customising a prosthesis for maxillofacial defects.⁹ As this skill set of the maxillofacial prosthetics they should be part of multi-disciplinary team, generally associated with oral and maxillofacial surgeons, plastic surgeons, ear, nose and throat surgeons, ophthalmologists, general surgeons, general physicians, oncologists, orthopaedic surgeons, gynaecologists and paediatricians, speech therapists, occupational therapists, physiotherapists etc.⁶ As the main goal of the treatment by the medical team is to resect the main pathology and prevent the recurrence and the complication post surgery but management of such surgical defect does require restoration and rehabilitation. Rehabilitation implies to restore to the previous structure, which is one of the core competency of service provided by a maxillofacial prosthodontist who is trained to make a prosthesis to restore the functional, aesthetic and psychologic lacunae associated with the defect. It has been observed that most of the patient's in India suffering with such defects do not get referred to a maxillofacial prosthodontist and remain untreated. Primary cause for this may or may not be the lack of awareness among the medical practitioners like surgeons, ophthalmologists, ENT surgeons, plastic surgeons to treat such patients for the residual defects after surgery. Therefore, the present study was undertaken to seek information about the awareness and knowledge of the medical practitioners in south west Bangalore city towards the maxillofacial branch of dentistry as a speciality to restore defects. The following are the questions which were included in the questionnaire. The study projects that despite a satisfactory (92%) awareness of the medical practitioners about the field of Prosthodontics, the referrals or rehabilitation rate of patients with surgical excision is very low

2. Methodology

This descriptive study was designed to be conducted amongst the institutional and private medical practitioners of south - west Bangalore, Karnataka. A self - administered questionnaire in simple English language was formulated and distributed between the medical practitioners with full instructions after obtaining their prior consent. . Since sample size estimation cannot be done so total enumeration method was used to collect samples.

Inclusion criteria:

- 1) Medical graduates.
- 2) Medical post graduates.
- 3) Medical practitioners working with the hospital and practicing individually.

Exclusion criteria:

- 1) Dentists and dental students.
- 2) Medical undergraduates.
- 3) Oral and maxillofacial surgeons and other dental postgraduates.

The questionnaire contained a total of 12 questions.¹⁰ questions were knowledge and awareness based, regarding awareness about maxillofacial prosthodontics as a specialized branch, which deals with the replacement of the missing facial structures. The professional details of the participants such as area of specialization and years of experience were also taken. The purpose and nature of the study was explained to each participant fitting in the inclusion criteria and the willing participants were requested to complete the questionnaire. Of 250 medical practitioners willingly participated in the study.⁶ out of 250 responses were eliminated as the participants did not fulfill the inclusion criteria.

SR. NO.	QUESTIONS	OPTIONS
1	QUALIFICATION (mark only one option)	GRADUATE
		POST GRAGUATE STUDENT
		POST GRADUATE
		POST GRADUATE WITH SUPERSPECIALITY
2	DEPARTMENT (mark only one option)	
		GENERAL PHYSICIAN (MBBS)
		GENERAL MEDICINE
		GENERAL SURGERY
		ENT SURGEON
		OPHTHALMOLOGY
		RADIOLOGY
		PLASTIC SURGERY
		MEDICAL ONCOLOGY
		SURGICAL ONCOLOGY
		DERMATOLOGY
		NEUROLOGY
		NEUROSURGERY
		ANESTHESIOLOGY
		PATHOLOGY
		Any other

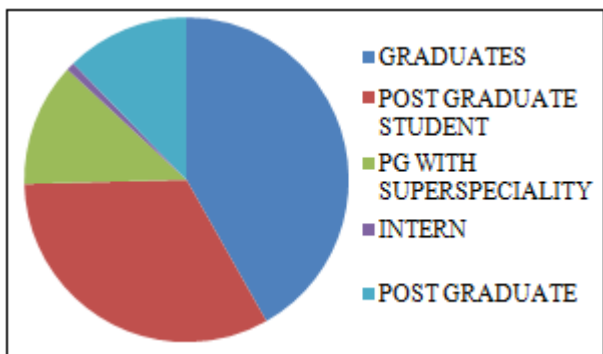
3	YEARS OF EXPERIENCE(mark only one option)	
		less than 1 YEAR
		1-5 YEARS
		6-10 YEARS
		11- 15 YEARS
		16-20 YEARS
		MORE THAN 20 YEARS
4	Who would you include in the expertise for delivery of treatment for patients with maxillofacial defects ?(more than response can be selected)	
		ENT surgeon
		Plastic surgeon
		Orthopaedic surgeon
		General surgeon
		oral surgeon
		Prosthodontist
		Onco surgeon
5	Have you heard of the maxillofacial prosthodontics branch of dentistry which deals with the restoration of maxillofacial defects with an artificial substitute?(Mark any one option)	
		yes
		no
6	Do you know that a prosthodontist, a dental specialist, deals with maxillofacial prosthesis? (mark any one response)	
		yes
		no
7	If you have heard of it, where did you hear about it? (Mark any one option)	
		Books
		Newspaper
		Dentist
		Friend
		Any other
8	Do you know the different types of maxillofacial defects that require prosthetic (artificial substitute) rehabilitation?(Mark any one option)	
		Patients with congenital defects
		Patients with acquired defects
		Both
		Don't know
9	Which of the following type of prosthesis are you aware of? (more than response can be selected)	
		Ear
		Eye
		Nasal & midfacial prosthesis
		Cranial prosthesis
		Prosthesis for maxilla & mandible
		Finger
		None
10	Have you ever come across a patient with any of the above mentioned defect who has been rehabilitated with a prosthesis?(Mark any one option)	
		yes
		no
11	Have you ever referred a patient with any of the above mention defects for rehabilitation to a prosthodontist?(mark only one option)	
		yes
		no
12	Which of the following prosthesis have you referred the patient for? (more than response can be selected)	
		Ear
		Eye
		Nasal and midfacial prosthesis
		Cranial prosthesis
		Prosthesis for maxilla & mandible
		Any other
		None

Statistical Analysis

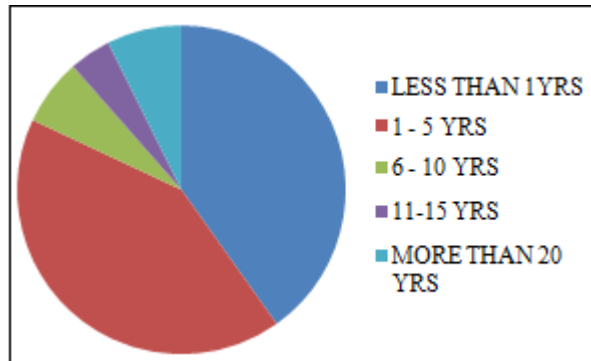
Statistical analyses was performed using IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp. Results on categorical measurements were presented as Frequency (Percentage). Inferential statistics like Fischer Exact test/Chi - square test was used to check association between the variables. The significance of level adopted was 5%.

3. Results

The graph 1 shows the qualification of the participants out of which 51 were graduates, 40 were post graduate students, 15 were post graduates, 15 super specialist and 1 intern.

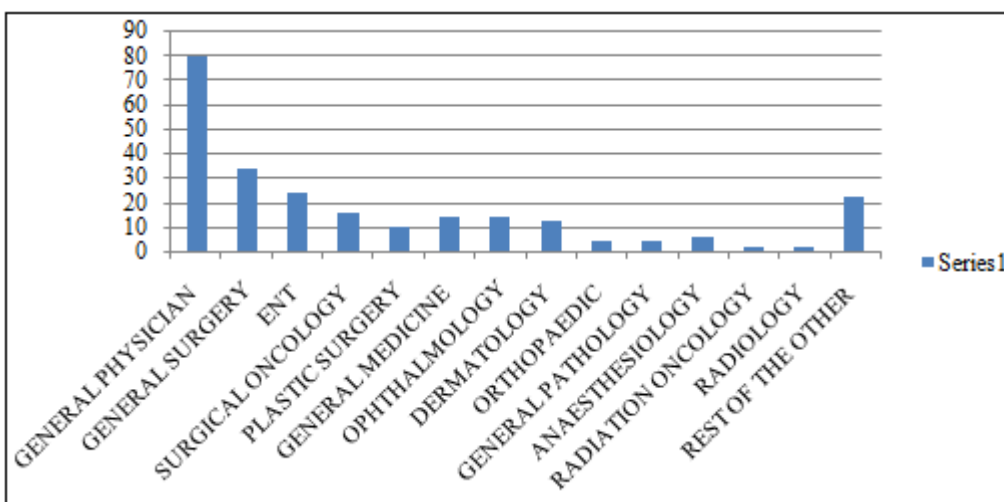


Graph 1: Qualification of Participants



Graph 2: Years of Experience of Participants

The graph 2 shows year of experience of the participants with 98 with less than 1 year of experience, 102 participants with 1 - 5 years of experience, 16 participants with 6 - 10 years of experience, 10 with 11 - 15 years of experience and 18 with more than 20 years of experience.



Graph 3: Department of the Participants

The graph 3 shows department of the participants with 80 from general physician (mbbs), 34 from general surgery, 24 from ENT surgery, 16 from surgical oncology, 10 from plastic surgery, 14 from general medicine, 14 from ophthalmology, 12 from dermatology, 4 from orthopaedic surgery, 4 from general pathology, 6 from anaesthesiology, 2 from radiation oncology, 2 from radiology, 22 from rest of the other departments.

Table 1: Shows the participants response to whom would they like to include in rehabilitation of maxillofacial defects

Specialty Included	Number	Percentage
Ent surgeon, Plastic surgeon, Oral surgeon (omfs) Prosthodontist	28/244	11.50%
only prosthodontists	28/244	11.50%
only ENT surgeons	24/244	9.8%
plastic surgeon only	14/244	5.70%
oral surgeon only	16/244	6.60%
Combination of various other speciality excluding prosthodontist	130/244	54.16%

When asked which speciality would the participant would like to include in the delivery of treatment for the patients with maxillofacial defects 11.5% of the participants included Prosthodontist and other speciality such as ENT surgeons,

Plastic surgeon, oral and Maxillofacial surgeons and other 11.5% of participants included only Prosthodontist.

Table 2: Shows Awareness of Participants about the Maxillofacial Prosthodontics as Part of Dentistry

Awareness about maxillofacial Prosthodontics as branch of dentistry	Frequency	Percent
Valid response	No	60
	Yes	184
	Total	244
		100.0

184 out of 244 participants had heard about maxillofacial prosthodontics as a branch of dentistry which sums upto 75.4% awareness about the maxillofacial Prosthodontics among the medical fraternity.

Table 3: Awareness among the Participants that a Prosthodontist Deals with Maxillofacial Prosthesis

Awareness that a prosthodontist, a dental specialist, deals with maxillofacial prosthesis?	Frequency	Percent
Valid response	No	60
	Yes	184
	Total	244
		100.0

184 out of 244 participants are aware that prosthodontist is a dental specialist who deals with the maxillofacial prosthesis. This sums upto 75.4% awareness among the medical fraternity prosthodontist and their scope of work.

Table 4: Source of Information about Maxillofacial Prosthodontics

Heard about maxillofacial Prosthodontics	Frequency	Percent	
Valid responses	Any other	76	31.1
	Books	28	11.5
	Dentist	88	36.1
	Friend	50	20.5
	Newspaper	2	0.8
	Total	244	100.0

80% of the participants were found to be aware about it from their dentists, friends or any other medium. Out of which 56% was attributed to dentist or their friend.

Table 5: Shows the Participants Response to Type of Maxillofacial Defect that Requires Prosthetic Rehabilitation

types of maxillofacial defects that require prosthetic (artificial substitute) rehabilitation		Frequency	Percent
Valid responses	Both	170	69.7
	Don't know	68	27.9
	Patients with congenital defects	6	2.5
	Total	244	100.0

85% of the participants felt that both congenital and acquired defects required rehabilitation, 34% answered with don't know and 2.5% of participants felt only patients with congenital defects require prosthetic rehabilitation.

Out of 244 participants only 36 participants responded being aware of all the prosthesis that is dealt by a prosthodontist including Ear, Eye, Nasal & midfacial prosthesis, Cranial prosthesis, Prosthesis for maxilla & mandible, Finger. 18 participants did not include cranial prosthesis and 12 participants excluded cranial, eye and finger prosthesis.

Table 6: Number of Participants that have Come across Patients with Maxillofacial Prosthesis

Ever come across a patient with maxillofacial prosthesis		Frequency	Percent
Valid response	No	124	50.8
	Yes	120	49.2
	Total	244	100.0

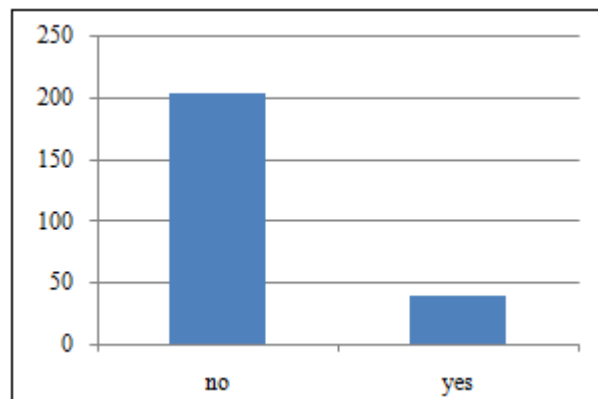
124 out of 244 participants have never come across a patient that needed a surgical resection and rehabilitation.

Table 7: Shows Whether the Participants Have Referred any Patient with Defect For Rehabilitation

Referred any patients with defect for rehabilitation		Frequency	Percent
Valid responses	No	160	65.6
	Yes	84	34.4
	Total	244	100.0

160 out of 244 participants had never referred a patient to a prosthodontist for rehabilitation.

Out of the 84 referrals, 30 were for the prosthesis of maxilla and mandible, 16 were for the nasal and midfacial prosthesis including maxilla and mandible and rest of the numbers were equally distributed between referrals for eye and ear prosthesis.



Graph 4: Whether the Participant have ever been Involved with the Maxillofacial Prosthodontist for Surgical Planning

204 out 244 participants had never been involved in any treatment planning of rehabilitation with a prosthodontist.

4. Discussion

Globally, oral cancer ranks sixth among all types of cancer. India has the largest number of oral cancer cases and one - third of the total burden of oral cancer globally. Oral cancer poses a serious health challenge to the nations undergoing economic transition.¹⁰In India, around 77, 000 new cases and 52, 000 deaths are reported annually, which is approximately one - fourth of global incidences.¹¹The increasing cases of oral cancer are the most important concern for community health as it is one of the common types of cancers in India.¹²As compared to the west, the concern of oral cancer is significantly higher in India as about 70% of the cases are reported in the advanced stages (American Joint Committee on Cancer, Stage III - IV). Because of detection in the late phase, the chances of cure are very low, almost negative; leaving five - year survival rates around 20% only.¹³

The scope and the extent of work which can be delivered by the maxillofacial prosthodontist as a part of rehabilitation is often hardly understood by the general medical practitioners and general public. With the advent of the endosseous implants, zygomatic implants, patient specific implant and extraoral implants have aided in the improved retention of these prosthesis has been a game changer.

It has been observed that most of the patients in India suffering with such defects do not get referred to a maxillofacial prosthodontist and remain untreated. Primary cause for this may or may not be the lack of awareness among the medical practitioners like surgeons, ophthalmologists, ENT surgeons, plastic surgeons to treat such patients for the residual defects after surgery.

Therefore, the study was conducted to collect the data regarding awareness and knowledge of the medical practitioners towards the maxillofacial branch of dentistry as a speciality to restore maxillofacial defects.

When asked which speciality would the participant would like to include in the delivery of treatment for the patients with maxillofacial defects 11.5% of the participants included Prosthodontist and other speciality such as ENT surgeons, Plastic surgeon, oral and Maxillofacial surgeons and other 11.5% of participants included only Prosthodontist (table 1)

184 out of 244 participants had heard about maxillofacial prosthodontics as a branch of dentistry and were aware that it deals with rehabilitation of lost facial structures (table 2 and table 3). This sums upto 75.4% awareness among the medical fraternity prosthodontist and their scope of work

80% of the participants were found to be aware about it from their dentists, friends or any other medium. Out of which 56% was attributed to dentist or their friend as its a dental speciality which can be a part of multi - disciplinary the awareness plays an important role (table4).

170 out of 244 participants felt that both congenital and acquired defects required rehabilitation and 68 out of 244 answered with don't know. This show only 69.1% were sure about the both congenital and acquired defects needs to be rehabilitated

When enquired about the prosthesis Out of 244 participants only 36 participants responded being aware of all the prosthesis that is dealt by a prosthodontist including Ear, Eye, Nasal & midfacial prosthesis, Cranial prosthesis, Prosthesis for maxilla & mandible, Finger.18 participants did not include cranial prosthesis and 12 participants excluded cranial, eye and finger prosthesis.

124 out of 244 participants had never come across a patient that needed a surgical resection and rehabilitation.160 out of 244 participants had never referred a patient to a prosthodontist for rehabilitation.

Out of the 42 referrals, 15 were for the prosthesis of maxilla and mandible, 8 were for the nasal and midfacial prosthesis including maxilla and mandible and rest of the numbers were equally distributed between referrals for eye and ear prosthesis.204 out 244 participants had never been involved in any treatment planning of rehabilitation with a prosthodontist.

The study projects that despite a satisfactory (92%) awareness of the medical practitioners about the field of prosthodontics, the referrals or rehabilitation rate of patients with surgical excision was very low. A survey conducted by Trupti Dahane et al, addresses the same problem and the results were quite similar where the awareness of the speciality of prosthodontics was found to be 71%, however the referral rates were only about 3%.¹⁴

The survey reveals the percentage of awareness amongst the medical practitioners regarding various maxillofacial defects but at the same time it recognises the lack of awareness amongst them regarding a person who could be their colleague and be a part of multidisciplinary team which is responsible for addressing the need of patients' suffering with various kinds of maxillofacial defects.

The survey indicates a need to conduct awareness activities amongst the medical practitioners and patients undergoing

such treatments. An initiative to join hands to form a multidisciplinary team is required to improve the health related quality of life of individuals with maxillofacial defects.

5. Conclusion

Knowledge and awareness about maxillofacial prosthodontics is fairly satisfactory. Despite, the referrals and multidisciplinary approach taken to manage such patients is poor. This probably is the reason why a patient in need of maxillofacial prosthesis may not find the correct doctor to treat his / her condition and remains without complete rehabilitation.

6. Limitations

The study is restricted to a small population, which restricted the information obtained about the awareness and knowledge of the maxillofacial branch of prosthodontics among the medical practitioners of Southwest Bangalore PART OF Bangalore city. The distribution of participants in terms of specialisation, years of experience and qualification is non uniform which may affect the results to some extent.

Conflicts of Interest

The authors declares that there is no conflict of interest regarding the publication of this paper.

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