

A Survey To Assess The Knowledge And Awareness Of Maxillofacial Prosthesis As A Treatment Option To Replace Lost Structure Among Dental And Medical Professionals.

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Abstract:

There are various psychological aspects of the success of any prosthetic treatment which include aesthetics, comfort, function, hygiene, presentation, and satisfaction. Prosthetic treatment also relates to patient satisfaction which in all includes self-esteem, self-concept, body image, and Oral-Health-Related Quality of Life. Since India is a developing country with a vast population, not every individual is aware of the advances and the variety of prostheses that a dental practitioner can provide. The study sought to assess public awareness, ascertain patients' expectations, and improve their understanding of procedural implications through necessary information about various prostheses. This study assessed how dental and medical professionals feel about using a maxillofacial prosthesis to restore lost structure.

Keywords: maxillofacial prosthesis, 3d printing, maxillofacial prosthodontist.

Introduction

There are various psychological aspects of the success of any prosthetic treatment which include aesthetics, comfort, function, hygiene, presentation, and satisfaction. Prosthetic treatment also relates to patient satisfaction which in all includes self-esteem, self-concept, body image, and Oral-Health-Related Quality of Life.

Individuals with lower education levels and low economic status tend to have poorer dental status. Hence, these individuals usually do not consider treatment options that are more expensive.¹

Since India is a developing country with a vast population, not every individual is aware of the advances and the variety of prostheses that a dental practitioner can provide.

The study was done to assess public awareness, determine patient's expectations, and enhance their understanding of procedural implications through requisite information about various prostheses, prior to presenting for professional consultation for different types of prostheses available as a treatment option.^{2,3}

Maxillofacial prosthodontists are individuals who have the knowledge and skill set to provide the service of customizing a prosthesis for maxillofacial defects, Such lack of awareness can deprive the patients of the benefits in spite of the existing facilities and compel them to live the remaining years with poor quality of life. Therefore, the present study was undertaken to seek information about the awareness and knowledge of maxillofacial prosthesis as a treatment option to replace lost structure among dental and medical professionals.^{4,5}

Methodology

This descriptive cross-sectional study was conducted amongst the institutional and private medical practitioners of Rajahmundry City after institutional ethical approval by GSL Dental College and Hospital Rajahmundry.

Inclusion Criteria

1. Medical And Dental practitioners associated with hospitals or practicing individually.
2. Post-graduate residents associated with a medical hospital.

The questionnaire contained a total of 20 questions.

A few questions were knowledge-based while few regarding awareness about maxillofacial prosthodontics as a specialized branch, various types of maxillofacial defects, and materials needed for prosthesis fabrication, etc, and were circulated online for ease of accessibility and distribution. The survey was created using Google Forms and distributed via social media to dental and medical practitioners. Dental students who had begun clinical procedures, and practicing dentists were included in the study. Dental students who had not yet begun clinical procedures were among those who were excluded.

The questionnaire was written in English and consisted of questions that had to be answered in yes, no, or maybe. The sample size was taken based on the convenience of the study.

All of the collected data was analyzed, and visual presentations of the extracted data were plotted.

Data analysis was carried out using descriptive statistics methods.

Results

A total of 500 responses were received among which females showed more awareness regarding maxillofacial prosthesis.

On the statistical analysis of various responses,

Table 1 showed the Distribution of responses to awareness based on gender.

Table 2 shows the Distribution of responses to awareness based on education

While MBBS showed less experience with the maxillofacial prosthesis, Dental students were very much exposed to the maxillofacial prosthesis. Among them when asked about an eye/ear/nose that can be replaced by a maxillofacial prosthesis, 51.2% of BDS said yes while 51.1% of MBBS students dint know the answer.

Table 3 depicts the Distribution of responses to awareness based on educational qualification Amongst the undergraduate and postgraduate, post-graduates have much knowledge regarding the maxillofacial prosthesis.

Among them, 57.9% of the undergraduates preferred to refer an ENT specialist for replacing a missing ear but 88% of post-graduates preferred a dental surgeon which was statistically significant. 83.5% of undergraduates never referred a patient for a maxillofacial prosthesis whereas 68% of postgraduates did refer a maxillofacial prosthodontist for rehabilitation.

Table 4 Compares knowledge scores based on background characteristics.

Among medical and dental professionals 84.8% of BDS students and 51.6% of MBBS students were ready to receive training regarding maxillofacial prosthesis and this result was found statistically significant.

Discussion

Perceived needs are important determinants in assessing the requirements for prosthetic replacement of missing teeth). In this study, the level of knowledge, awareness, and attitude about prosthetic treatment modalities have been evaluated.

Prosthodontists usually consider factors such as the preservation of natural teeth and the maintenance of periodontal health as a priority, but patients tend to prioritize comfort in mastication and the improvement of esthetics.⁶

As seen in Table 3 Question 1 knowledge regarding maxillofacial prosthesis was more among undergraduate students than among postgraduates similar results were shown in a survey conducted in 2018 by Seifert LB et al., on undergraduate training in oral and maxillofacial surgery, in Germany showed that there were significant differences in terms of teaching methods and teaching time indicating that undergraduate students achieve inconsistent competencies and depth of knowledge after completion of their educational programs.⁷

Dental students should understand the need for maxillofacial rehabilitation so that they can refer such patients to specialists as and when it is required. A general practitioners should be provided with information that will make them aware of precautions to be taken with special patients, as the sequelae of mismanagement are critical.

With this, it is clearly evident that one of the major duties of a maxillofacial prosthodontist is to stimulate interest in maxillofacial prosthetics so that dental students who will eventually practice in remote areas may seek additional knowledge and capabilities.⁸

However, the knowledge of dental undergraduate students regarding the same is better in comparison to that of medical professionals, as proven in a study conducted by Vadepally A et al.⁹

Amongst the responses when asked if maxillofacial were costly 20% of undergraduates thought they are not very expensive while 36% believed them to be expensive while 44% people dint know about cost.

But 52% of postgraduates believed them to be costly, 24% dint think of them as costly and 24% were unaware of the cost. Recently, inexpensive personalized 3D printers have been introduced, with increased accuracy, making it possible to manufacture products inside the hospital, reducing the time required.¹⁰

The ability and the scope of a Maxillofacial prosthodontist among the general public and medical practitioners are scarcely understood. The practitioners are minimally aware of such a treatment modality and that it comes under the curriculum of a prosthodontist. On account of the lack of awareness, the patients with maxillofacial defects are not adequately guided and referred to a maxillofacial prosthodontist for rehabilitation.¹¹

As far as the materials used for the fabrication of such prostheses are concerned, 10% of practitioners showed their knowledge regarding PMMA (Polymethyl methacrylate) material while 4.8% people knew that it could be fabricated in ABS (Acrylonitrile butadiene styrene), and 8.8% knew about silicon materials, while majority i.e. 75.5% believed that prostheses can be built using all these materials. There have been various materials that can be used to fabricate maxillofacial prostheses that consist including PEEK, silicone, latex, PMMA, etc. The results obtained in this study were in line with previously done studies wherein the study population was not aware of the different maxillofacial prostheses and the materials used to fabricate them.^{12,13 14,15}

In accordance with the study done by Harshakasab Wala et al When the population was asked if they would like to learn and practice digital maxillofacial prosthesis in the future, most of the undergraduates and postgraduates agreed to the fact. This displayed the willingness of the newer population to practice digital dentistry. Based on the chi-square test analysis there was a statistically significant difference in the awareness levels regarding digitalization of maxillofacial

prosthesis among all the qualification and age groups. The undergraduates and postgraduates are the most aware based on statistical analysis. This suggests that the younger age group especially the ones who are in their educational period are inclined towards the new and improved digital protocol to fabricate dental prostheses.¹⁶

Conclusion

From the present study, it can be observed that most of the subjects were not aware of Maxillofacial prosthesis. Treatment of maxillofacial defects requires fastidious diagnosis and coordination between all the treating professionals. Dentistry in the 21st century primarily involves aesthetics as there is a rise in awareness amongst patients regarding their physical appearance.

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Figure 1: Comparison of knowledge scores based on background characteristics

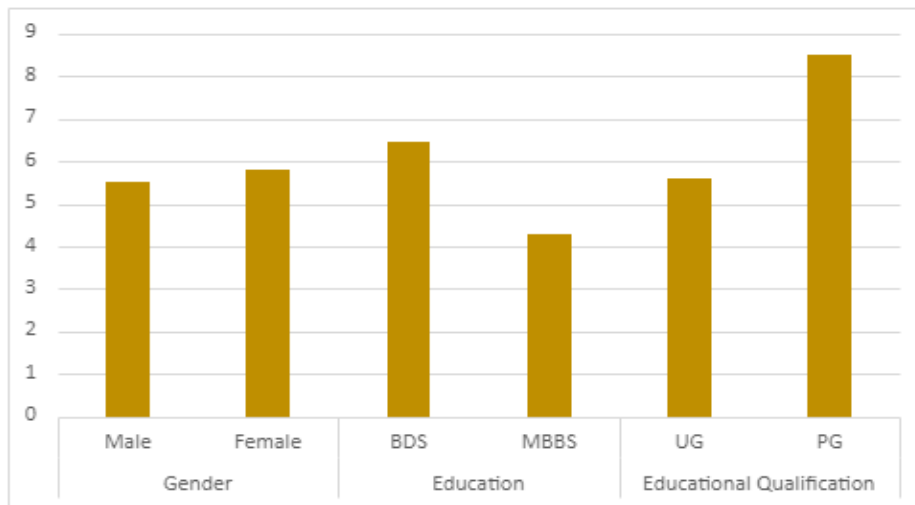


Table 1: Distribution of responses to awareness on based on gender

Question	Category	Male n(%)	Female n(%)	P value
Q1	No	86(51.2)	182(48)	0.494
	Yes	82(48.8)	197(52)	
Q3	No	122(72.6)	288(76)	0.401
	Yes	46(27.4)	91(24)	
Q5	No	41(24.4)	91(24)	0.921
	Yes	127(75.6)	288(76)	
Q10	Don't know	60(35.7)	141(37.2)	0.022*
	No	47(28)	68(17.9)	
	Yes	61(36.3)	170(44.9)	
Q11	Dental Surgeon	63(37.5)	151(39.8)	0.348
	ENT	93(55.4)	212(55.9)	
	General practitioner	12(7.1)	16(4.2)	
Q13	May be	65(38.7)	146(38.5)	0.003*
	No	13(7.7)	7(1.8)	
	Yes	90(53.6)	226(59.6)	
Q15	No	126(75)	318(83.9)	0.014*
	Yes	42(25)	61(16.1)	
Q19	Don't know	75(44.6)	163(43)	0.184
	No	51(30.4)	142(37.5)	
	Yes	42(25)	74(19.5)	
Q20	No	58(34.5)	86(22.7)	0.004*

	Yes	110(65.5)	293(77.3)	
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Chi square test; $p \leq 0.05$ considered statistically significant; * denotes significance

Table 2: Distribution of responses to awareness on ----- based on education

Question	Category	BDS n(%)	MBBS n(%)	P value
Q1	No	129(35.5)	139(75.5)	<0.001*
	Yes	234(64.5)	45(24.5)	
Q3	No	251(69.1)	159(86.4)	<0.001*
	Yes	112(30.9)	25(13.6)	
Q5	No	86(23.7)	46(25)	0.735
	Yes	277(76.3)	138(75)	
Q10	Don't know	107(29.5)	94(51.1)	<0.001*
	No	70(19.3)	45(24.5)	
	Yes	186(51.2)	45(24.5)	
Q11	Dental Surgeon	160(44.1)	54(21.3)	0.003*
	ENT	184(50.7)	121(65.8)	
	General practitioner	19(5.2)	9(4.9)	
Q13	May be	119(32.8)	92(50)	<0.001*
	No	12(3.3)	8(4.3)	
	Yes	232(63.9)	84(45.7)	
Q15	No	278(76.6)	166(90.2)	<0.001*
	Yes	85(23.4)	18(9.8)	
Q19	Don't know	154(42.4)	84(45.7)	0.206
	No	124(34.2)	69(37.5)	
	Yes	85(23.4)	31(16.8)	
Q20	No	55(15.2)	89(48.4)	<0.001*
	Yes	308(84.8)	95(51.6)	

Chi square test; $p \leq 0.05$ considered statistically significant; * denotes significance

Table 3: Distribution of responses to awareness on ----- based on educational qualification

Question	Category	UG n(%)	PG n(%)	P value
Q1	No	266(51)	2(8)	<0.001*
	Yes	256(49)	23(92)	
Q3	No	402(77)	8(32)	<0.001*
	Yes	120(23)	17(68)	
Q5	No	130(24.9)	2(8)	0.054
	Yes	392(75.1)	23(92)	
Q10	Don't know	201(38.5)	0	<0.001*
	No	113(21.6)	2(8)	
	Yes	208(39.8)	23(92)	
Q11	Dental Surgeon	192(36.8)	22(88)	<0.001*
	ENT	302(57.9)	3(12)	
	General practitioner	28(5.4)	0	
Q13	May be	210(40.2)	1(4)	<0.001*
	No	20(3.8)	0	
	Yes	292(55.9)	24(96)	
Q15	No	436(83.5)	8(32)	<0.001*
	Yes	86(16.5)	17(68)	
Q19	Don't know	232(44.4)	6(24)	0.001*
	No	187(35.8)	6(24)	

	Yes	103(19.7)	13(52)	
Q20	No	139(26.6)	5(20)	0.462
	Yes	383(73.4)	20(80)	

Chi-square test; $p \leq 0.05$ considered statistically significant; * denotes significance

Table 4: Comparison of knowledge scores based on background characteristics

Variable	Category	Mean \pm Std. Deviation	Std. Error	t statistic	P value
Gender	Male	5.51 \pm 2.41	0.186	-1.4178	0.14
	Female	5.81 \pm 2.15	0.11		
Education	BDS	6.44 \pm 1.97	0.104	11.92	<0.001*
	MBBS	4.29 \pm 2.04	0.15		
Educational Qualification	UG	5.59 \pm 2.2	0.09	-6.54	<0.001*
	PG	8.48 \pm 0.91	0.18		

Independent samples t test; $p \leq 0.05$ considered statistically significant; * denotes significance