

General Awareness and Acceptance of Dental Implants in Patients Attending A Tertiary Care Hospital

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Abstract

Background and Objectives: To determine the level of general awareness about dental implants and to assess the level of acceptance of dental implants in patients attending a tertiary care hospital.

Methods: It was a cross sectional study conducted in Fatima Memorial Hospital, Lahore from March 2018 to August 2018. Study was conducted after the ethical approval from Institutional Review Board of Fatima Memorial Hospital. A total of three hundred and three patients attending a tertiary care hospital were given the questionnaire after an informed consent including 20 questions regarding general awareness of dental implants and the level of acceptance in patients. The data was summarized and analyzed on Statistical package for social sciences (SPSS) version 23.0. Appropriate Descriptive inferential statistics were performed.

Results: Amongst 303 patients 142(47%) were males and 161(53%) were females with an age range of 18 to 64 years. Majority of study respondents were undergraduate: 166(54.8%) followed by graduate: 102(33.7%). Among our patients 188(62%) were aware of dental implant and main source of information regarding dental implant was their dentist 126(57.8%) followed by internet search 33(15.1%). The patients who were willing for dental implant treatment were 128(42.2%) while the major hindrance for not opting a dental implant treatment was high cost of the treatment.

Conclusion: The patients attending a tertiary care hospital have moderate level of awareness regarding dental implants. Awareness was higher specifically in people who were more educated and belonging to a younger age group. Creating more awareness amongst patients regarding the pros and cons of dental implants can help in eliminating any negative image of the treatment.

Key words: Dental implants, General awareness, Patient acceptance.

Introduction:

Dental implants are considered to be the benchmark of today's prosthodontics and Restorative rehabilitation.

Placement of missing teeth using implants for esthetics and functional rehabilitation has become an accepted and widely used treatment approach in dentistry.¹⁻⁵

However; the level of awareness of dental implant treatment varies among patients in different countries. Reports from Finland, Australia, Saudi Arabia and Austria have shown that level of awareness of dental implant treatment amongst selected groups of patient to be 29%, 64%, 64.4% and 79%.^{6,7,8,9}

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Public awareness and acceptance of dental implants was high and patients had a positive attitude toward dental implants in a survey conducted in America.¹⁰ They also reported that implant supported rehabilitations were esthetically more pleasing and acceptable than removable prosthesis and rated this major advantage to the implant dentistry. The most important aspect of implant treatment is its knowledge among the general public. Patients coming to private clinics were aware of dental implants compared with public hospitals.¹¹

Within the last five decades, dentistry appears to have recorded its most significant advancement in the field of dental Implantology.¹² With dental implants; missing teeth can now be replaced with stable and natural looking appearance. According to an estimate in 2010 about 100,000-300,000 dental implants are placed per year in India.¹³ In spite of this length of time associated with the innovation, the awareness and practice of dental Implantology in government dental clinics in Enugu is still aground. To determine the awareness of dental implants as a replacement of missing teeth amongst the health workers, a study was conducted in Enugu. Out of 320 respondents only 31 (9.7%) were aware while 23 (7.2%) recognized it was a choice in tooth replacement.¹⁴

Awareness regarding dental implant treatment was assessed amongst patients of different age groups.¹⁵ The participants were divided into three different age groups. The participants less than 30 years demonstrated 43% awareness rate. Awareness of dental implants varied, among different age groups. The younger individuals demonstrate a better awareness to dental implants vary which may influence the treatment outcome, thus emphasizing the importance of good clinical-patient communication.¹⁶ Whereas it is emphasized that though extensive literature on dental implants is available, still perception and awareness regarding dental implant treatment is largely being neglected.¹⁷

Media plays a major role in public dental education and contributes to increased level of awareness about dental implants. In a survey 77% of participants questioned about dental implants were well aware of it, media being the prime source rather than dentist themselves.¹⁸ On a contrary Austrian population showed dentist as a main source of information.¹⁹ Meticulous oral hygiene maintenance plays a pivotal role for long term clinical success of dental implants.¹⁶

Literature showed varied levels of awareness among patients, general population and undergraduate students.¹⁷⁻²⁰ To the authors knowledge there is very less data available in the literature to determine patient awareness and acceptance toward dental implants in tertiary care hospital. Hence a study was planned to determine level of awareness about dental implants and assess the patient's acceptance of dental implants the study further explores the source of the knowledge regarding dental implants in patients attending a tertiary care hospital.

Methods:

A cross sectional study was conducted in Fatima Memorial Hospital (FMH) from March 2018 to August 2018. Inclusion criteria had outdoor patient of the above mentioned hospital, both genders with age group of 18-64 years. Ethical approval was taken prior conducting study from institutional Review Board of FMH. A self-explanatory questionnaire was designed to assess patients' general awareness and acceptance of dental implants. Questions were included to determine the source of knowledge, the choice of treatment and the hindrance in opting the dental implant. A pilot test was performed on 50 patients to test the validity and reliability of questionnaire. Informed consent was taken prior to giving questionnaire. Data was summarized and analyzed on Statistical Package for Social Sciences (SPSS) version 23. Categorical variables were presented in form of frequency and percentages. Chi Square test was applied and p-value less than 0.05 was considered significant.

Results:

Total number of participants in this study were three hundred and three (303) amongst them 142 (46.9%) were males and 161 (53.1%) were females with a median age range of 31(26.25) and 30(16) respectively. The awareness rate in the study population was found to be 188 (62%) (237) (Table- I)

Table: I Gender wise general awareness of dental implants in patients

General Awareness	Categories	Gender		Total	P-value
		Male	Female		
Are you aware of dental implants as a replacement of missing teeth?	Yes <input type="checkbox"/>	83 (27.4%)	105 (34.7%)	188 (62%)	.237
	No <input type="checkbox"/>	59 (19.5%)	56 (18.5%)	115 (38%)	
Do you have any missing teeth in your mouth?	Yes <input type="checkbox"/>	64 (21.1%)	58 (19.1%)	122 (40.3%)	.127
	No <input type="checkbox"/>	78 (25.7%)	103 (34%)	181 (59.7%)	
If Yes, what treatment modality will you take for it?	Fixed teeth	49 (37.4%)	44 (33.6%)	93 (71%)	.848
	Removable teeth	19 (14.5%)	19 (14.5%)	38 (29%)	
How well aware are you Fixed teeth?	Unaware	33 (10.9%)	61 (20.1%)	94 (31%)	.016
	Aware	87 (28.7%)	75 (24.8%)	162 (53.5%)	
	Well aware	22 (7.3%)	25 (8.3%)	47 (15.5%)	
How well aware are you removable teeth?	Unaware	36 (11.9%)	46 (15.2%)	82 (27.1%)	.820
	Aware	80 (26.4%)	87 (28.7%)	167 (55.1%)	
	Well aware	26 (8.6%)	28 (9.2%)	54 (17.8%)	
What Alternative measures do you know for the replacement of the missing teeth?	Dental Implants	53 (17.6%)	70 (23.3%)	123 (40.9%)	.210
	Dental Bridges	44 (14.6%)	36 (12%)	80 (26.6%)	
	Cast Partial Denture	6 (2%)	15 (5%)	21 (7%)	
	Acrylic denture	21 (7%)	22 (7.3%)	43 (14.3%)	
	Removable denture	17 (5.6%)	17 (5.6%)	34 (11.3%)	
What are the advantages of removable over non removable denture?	Easy to maintain hygiene	52 (17.2%)	46 (15.2%)	98 (32.3%)	
	Can be changed or removed any time	50 (16.5%)	46 (15.2%)	96 (31.7%)	
What are the advantages of non-removable over removable denture?	Less annoying	58 (19.1%)	71 (23.4%)	129 (42.6%)	.746
	More aesthetic	51 (16.8%)	58 (19.1%)	109 (36%)	
	Less patient compliance	33 (10.9%)	32 (10.6%)	65 (21.5%)	
Is implant a best treatment option	Yes <input type="checkbox"/>	88 (29%)	99 (32.7%)	187 (61.7%)	1
	No <input type="checkbox"/>	54 (17.8%)	62 (20.5%)	116 (38.3%)	
Have you heard about dental implants?	Yes <input type="checkbox"/>	95 (31.4%)	115 (38%)	210 (69.3%)	.454
	No <input type="checkbox"/>	47 (15.5%)	46 (15.2%)	93 (30.7%)	
From where have you heard regarding dental implants?	Dentist	57 (26.1%)	69 (31.7%)	126 (57.8%)	.173
	Dental newsletter	20 (9.2%)	12 (5.5%)	32 (14.7%)	
	Advertisements	10 (4.6%)	17 (7.8%)	27 (12.4%)	
	Internet	13 (6%)	20 (9.2%)	33 (15.1%)	

Majority of the patients were undergraduate 166 (54.8%) followed by graduate 102 (33.7%) Further the awareness regarding dental implants treatment as a replacement of missing teeth varied amongst different age groups i.e. 21-30 year (35.9%), 31-40 years (31.02%), 41-50 years (10.23%) and above 50 years (14.85%) (Table-2).

Table:2 Distribution of age and education with respect to gender

Characteristics	Categories	Gender		Total 303 (100%)
		Male 142 (46.9%)	Female 161 (53.1%)	
Age	Under 20	7 (2.3%)	17 (5.6%)	24 (7.9%)
	21-30	54 (17.8%)	55 (18.2%)	109 (36%)
	31-40	35 (11.6%)	59 (19.5%)	94 (31%)
	41-50	14 (4.6%)	17 (5.6%)	31 (10.2%)
	Above 50	32 (10.6%)	13 (4.3%)	45 (14.9%)
Education	Illiterate	3 (1%)	11 (3.6%)	14 (4.6%)
	Undergraduate	69 (22.8%)	97 (32%)	166 (54.8%)
	Graduate	60 (19.8%)	42 (13.9%)	102 (33.7%)
	Masters	10 (3.3%)	11 (3.6%)	21 (6.9%)

Frequency (percentage)*

In this study main source of information about dental implant was through their dentist which was 126 (57.8%) followed by internet search i.e. 33 (15.1%), dental newsletter 32 (14.7%) and the advertisements 27 (12.4%). (0.173) Females were more aware regarding dental implants 105 (34.7%) than males 83 (27.4%) (.237) (Table-2).

There were 223 (73.6%) of dental patients questioned in this study who were interested in having more information about dental implants When patient were asked about the factors that prevent them from choosing implants the responses were high cost 119 (39.3%), involvement of surgery 101 (33.3%), lack of awareness 60 (19.8%) and the past bad experience 23 (7.6%). In this study 171 56.4% of the patient agreed on the fact that maintenance and cleanliness similar to natural teeth and 132 43.5% would need more care (.562) (Table-3)

Table:3 Gender wise acceptance of dental implants in patients:

	Categories	Gender		Total	P-value
		Male	Female		
Are you willing for dental implants treatment?	Yes <input type="checkbox"/>	67 (22.1%)	61 (20.1%)	128 (42.2%)	.105
	No <input type="checkbox"/>	75 (24.8%)	100 (33%)	175 (57.8%)	
What is the hindrance for opting dental implants as replacement of missing teeth?	High Cost	60 (19.8%)	17 (5.6%)	119 (39.3%)	.188
	Involvement of surgery	49 (16.2%)	59 (19.5%)	101 (33.3%)	
	Lack of awareness	27 (8.9%)	52 (17.2%)	60 (19.8%)	
	Past bad experience	6 (2%)	33 (10.9%)	23 (7.6%)	
Is your dentist practicing implant dentistry?	Yes <input type="checkbox"/>	73 (24.1%)	92 (30.4%)	165 (54.5%)	.356
	No <input type="checkbox"/>	69 (22.8%)	69 (22.8%)	138 (45.5%)	
Do you think that implant should only be placed by specialist?	Jaw bone	68 (22.4%)	64 (21.1%)	132 (43.6%)	.211
	Gingival	36 (11.9%)	55 (18.2%)	91 (30%)	
	Adjacent Teeth	38 (12.5%)	42 (13.9%)	80 (26.4%)	
According to you what is an ideal care of implants?	Clean similar to natural teeth	83 (27.4%)	88 (29%)	171 (56.4%)	.562
	Needs more care	59 (19.5%)	73 (24.1%)	132 (43.6%)	

	Categories	Gender		Total	P-value
		Male	Female		
According to you what is the cause of implant failure?	Faulty technique	69 (22.8%)	84 (27.7%)	153 (50.5%)	.677
	Poor cross infection control	38 (12.5%)	44 (14.5%)	82 (27.1%)	
	Poor oral hygiene	35 (11.6%)	33 (10.9%)	68 (22.4%)	
Are you interested in having awareness about dental implants?	Yes <input type="checkbox"/>	102 (33.7%)	223 (73.6%)	0	.517
	No <input type="checkbox"/>	40 (13.2%)	80 (26.4%)	0	
How long do you expect the implant treatment will last?	Life long	30 (9.9%)	31 (10.2%)	61 (20.1%)	.515
	2-5 years	48 (15.8%)	48 (15.8%)	96 (31.7%)	
	5-10 years	41 (13.5%)	45 (14.9%)	86 (28.4%)	
	10-20 years	23 (7.6%)	37 (12.2%)	60 (19.8%)	
How many times have you been to your dentist in past one year?	Single visit	88 (29%)	93 (30.7%)	181 (59.7%)	.127
	2-5 visits	42 (13.9%)	42 (13.9%)	84 (27.7%)	
	5 plus visits	12 (4%)	26 (8.6%)	38 (12.5%)	
Do you think that insurance coverage require for this procedure?	Yes <input type="checkbox"/>	66 (21.8%)	91 (30%)	157 (51.8%)	.085
	No <input type="checkbox"/>	76 (25.1%)	70 (23.1%)	146 (48.2%)	

Discussion:

Replacement of missing teeth using implants for esthetics and functional rehabilitation has become an accepted and widely used treatment option in dentistry.¹⁻⁵ Total number of participants in this study are three hundred and three (303) amongst them 142 (46.9%) are males and 161 (53.1%) were females with a median age range of 31(26.25) and 30(16) respectively. In their education level the undergraduate 166 (54.8%), graduate 102 (33.7%) ,masters 21 (6.9%) and illiterate 14 (4.6%) .

In this study the awareness rate of dental implant treatment as an option for the replacement of missing teeth was 62%(188) . (Table-2). This is not different significantly from the result reported by Al-Johany et al , Tepper et al, Zimmer et al and Berge, who reported level of awareness as 77%, 70.01%, 72% and 66.4% respectively.9,17,18,21 Further in this study the awareness rate of dental implants varied in different age groups. Age range of under 20 years 24 (7.9%), 21-30 year 109 (35.9%), 31-40 years 94 (31.02%), 41-50 years 31 (10.23%) and above 50 years 45 (14.9%) were aware regarding dental implant as a replacement of missing teeth. In comparison to different education levels awareness rate varies i.e. Undergraduate (54.7%), Graduate (33.6%) Masters (6.9%) and Illiterate (4.6%). Females were more aware regarding dental implants 188 (34.6%) than males.

In this study main source of information about dental implant was their dentist which is 126 (57.8%) followed by internet search i.e. 33(15.1%)dental newsletter 32 (14.7%)and the advertisements 27 (12.4%)In contrary to the reported literature where Zimmer stated that media was found to be the main source of information about the dental implants while the dentist was 17% source for such information.18¹⁰ Best and Berge also found that media was the main source of

information while the dentist plays a secondary role.^{11,21} Akagawa et al in their study concluded that dentist provided not more than 20% of the information.²³

There were 223 (73.6%) of dental patients questioned in this study who were interested in having more information about dental implants which is similar to the results presented by Al-Johany et al where 82% of the dental patients were interested in having more information and more than three quarters of them preferred to have their dentists as a source of such information followed by the internet.⁹ This indicates the real need for dental education about dental implants among the patient attending a tertiary care hospital. When patient were asked about the factors that prevent them from choosing implants the responses were high cost 119 (39.3%), involvement of surgery 101 (33.3%), lack of awareness 60 (19.8%) and the past bad experience 23 (7.6%). Similarly a study conducted by Cyeda showed high cost 60.3%, need of surgery 34.7% and long treatment period 32.1% were the main disadvantages of the implant treatment according to the patients.²²

In this study 171 (56.4%) of the patient agreed on the fact that maintenance and cleanliness similar to natural teeth and 132 (43.5%) would need more care. Whereas a study conducted by Pommer reported 39% of the population thought the implant require more care and half of them would clean their teeth similar to natural teeth.¹⁰ Dentists should explain their patients the importance of dental oral hygiene and care before implant therapy, educate and motivate them to provide sufficient dental care for the maintenance of implants.

General health of the individuals is influenced by many factors including dental health. Loss of teeth not only effect general or dental health but also psychological status of the individual.²⁴ It is not only function which is compromised by losing teeth but aesthetic, phonetics and face shape are also affected. Replacing missing tooth/teeth are mandatory to avoid worsening of oral and general health as well as to maintain aesthetic, phonetics and face shape.²⁵ As dental implant retained restorations become more popular the prevalence of implant

complications will also increase. The maintenance of healthy tissue around the dental implants is one of the key factors to obtain long term success. Dental hygiene and care including soft tooth brushes, interproximal brushes, specially designed cleaning instruments made in hard plastics and mouth rinses help to prevent peri-implant disease.

The patients attending a tertiary care hospital need to know about the options they can have when it comes to the replacement of missing teeth.

Limitations: The study was self-funded and has limited resources. Future study may be conducted on large scale to strengthen its reliability of conclusions drawn about study topic under discussion.

Conclusion:

The patients attending a tertiary care hospital have defined awareness regarding dental implants. The patient having high literacy rate were more aware of the dental implants as compared to the ones who were illiterate. Younger individuals were better aware than the older individuals. Majority of the patients preferred dental implant treatment but high cost of the treatment was the major hindrance in opting dental implants.

Dentist was the main source of the information provided to the patients. Creating more awareness amongst patients regarding the dental implants can help in eliminating any negative image of the procedure.

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1. Maha Tahir- data collection, introduction writing, Literature review, Data analysis
2. Faisal Izhar- Study design, manuscript writing, data analysis
3. Nazia Yazdannie- Study design, manuscript writing, data analysis
4. Muhammad Mohsin Khan- Proofreading of manuscript, content reviewing of the article