

DENTAL IMPLANT FOR TOOTH REPLACEMENT: AWARENESS AND KNOWLEDGE AMONG PATIENTS SEEN AT RAWAL INSTITUTE OF HEALTH SCIENCES

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ABSTRACT

In current era, the best treatment modality for partially or completely edentulous patients is dental implant prosthesis worldwide. Although replacing missing teeth with dental implants is believed as satisfactory experience by patients, the awareness and knowledge about dental implants vary between individuals as well as countries. The purpose of this study was to assess the patients' knowledge and awareness about dental implants. It was a questionnaire-based cross-sectional survey performed in Islamabad at Prosthodontics Department, Rawal Institute of Health Science, in which self-structured questionnaires were distributed among 400 outdoor patients. Questionnaire included patient age, gender, level of education, knowledge about different treatment options for missing teeth, awareness of dental implants as treatment option, positive and negative patient perception about dental implant and source of information.

Only 38% (152) patients were aware of dental implants as treatment modality for missing teeth. Main reason given by patients not to avail dental implant as treatment option was cost (65.13%). Positive information among patients who were aware about implant option was high esthetic (50.67%) and high success rate (32.23%). Mainly dentists (44.08%) provided information about implant to patients. The association between patients' educational level and awareness about dental implant as treatment option for replacing missing teeth is statistically significant with the P-value = 0.01

The study concluded that majority of participants were not having knowledge regarding dental implants. Cost of dental implant is main hurdle for patients to choose implant as option. Reduced cost will facilitate patients with low socioeconomic status to choose dental implant as treatment option in developing countries like Pakistan.

Key Words: Dental implants, implant awareness, high cost

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INTRODUCTION

Dental caries and periodontal problems are major causes of missing teeth. Other may be traumatic tooth loss or congenitally missing teeth.¹ The consequences of missing teeth include deficient mastication, lack of facial support, speech issues, and esthetics.² If missing teeth are not replaced, it may also result into drifting of adjacent teeth and supra eruption of opposing teeth in to the missing tooth space, making treatment difficult in future.^{2,3} Tooth loss also results in psychological stress which requires significant social and psychological readjustment. To overcome these issues, lost teeth should be restored as soon as possible.^{3,4}

To replace missing teeth, generally two options are available, removable partial dentures and fixed dental

prosthesis. Fixed prosthesis may be tooth supported fixed partial denture or implant supported fixed prosthesis.^{5,6}

When choosing best treatment option for partially or completely edentulous patients, dental implant restorations come on top, because long-term clinical studies have approved the worth of implant therapy.^{6,7} In modern dentistry, dental implants are widely acknowledged as a prosthetic treatment modality for completely or partially edentulous patients.⁷⁻⁹ Proven benefits of implant prosthesis which include improved mastication, preservation of the bone, phonetics, aesthetics, led to widespread popularity and acceptance of dental implants within the dental professionals.¹⁰

Dental implant restorations include implant supported single tooth crown, implant supported fixed partial bridge, implant supported complete over denture or implant retained maxillofacial prosthesis.^{10,11} Edentulous patient with resorbed alveolar ridges especially mandibular ridge when rehabilitated with conventional complete denture suffer denture instability, poor retention, denture soreness and compromised mastication. Implant retained over denture improves quality of life of edentulous patient by improving denture retention, stability, support and mastication.^{13,14}

In Europe and USA, dental Implantology has established into a prospering element of dentistry.¹⁵ In Japan, 16.8% dental practice is of dental implants at dental clinics while worldwide, one million implants are being placed each year. In USA, good public awareness and positive attitude was found back in 1992.^{16,17} In Austria 79% and in Australia 64% people were aware about dental implants.¹⁸ Unfortunately, in developing countries like Pakistan patient awareness about dental implant is not similar to developed countries due to lack of education among patients and less approach to quality dental care.¹⁰ With time, dental implant practice is increasing in developing countries however public perspective about dental implants is less known. Therefore, it is mandatory to make patients aware about dental implants to choose most appropriate treatment option for missing teeth.

According to author's knowledge, in Pakistan, there are no existing dental studies about patient's awareness regarding dental implant as treatment option for missing teeth. Therefore, the aim of current study was to assess the dental patients' awareness, source of information and positive and negative information of dental implants as a treatment option for replacement of missing teeth among a selected sample of dental patients at a tertiary care center Islamabad, Pakistan.

METHODOLOGY

A descriptive cross-sectional study was done for

assessment of the level of awareness regarding dental implants among patients visiting Prosthodontic department, Rawal Institute of Health Sciences, Islamabad. The study was approved by Research Ethics committee of Rawal Institute of Health Sciences, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad. Self-explanatory questionnaire was designed to assess the patient information and awareness about dental implant. Questionnaire was specifically developed to record patient age, gender, level of education, knowledge about different treatment options for missing teeth, awareness of dental implants as treatment option, positive and negative patient perception about dental implant and source of information. Survey was conducted in six months from May 2018 to October 2018. All patients coming to prosthodontics department who were willing to give informed consent and were above 20 years of age were included in study. A total of 400 participants met the required criteria during study period were surveyed. All patients were selected by nonprobability convenience sampling technique. The questionnaire was prepared in both English and Urdu for facility of patients according to patients' different level of education. Uneducated patients were interviewed following questionnaire. It took 8-10 minutes to answer all the questions.

Data were analyzed on computer program SPSS version 20. Mean and standard deviation was calculated for age. Frequency tables were used to determine the proportion level of variables among surveyed patients. To correlate the participants' awareness about dental implants as an option for replacement of missing teeth and their level of education, P-value ≤ 0.05 was set for significance.

RESULTS

Out of 400 participant of study, females were dominant consisting of 53.75%. Table 1 shows distribution of participant according to gender. Table 2 shows the level of education of patients. Most patients participated in study were primary educated. Table 3 shows patient awareness about different treatment options for missing teeth. Only 38% (152) patients were aware of dental implants as treatment modality for missing teeth. Table 4 shows the positive and negative information among patients who were aware of dental implants. Main reason given by patients not to avail dental implant as treatment option was cost (65.13%). Positive information among patients who were aware about implant option was high esthetic (50.67%) and high success rate (32.23%). Table 5 shows the source of information about dental implants among patients. Mainly dentists (44.08%) provided information about implant to patients. Table 6 shows relationship between level of education and awareness about dental implant.

TABLE 1: DISTRIBUTION OF PATIENTS BY GENDER

EDUCATIONAL LEVEL	FREQUENCY	
	N	%
Females	215	53.75
Males	185	46.25
Total	400	

TABLE 2: DISTRIBUTION OF PATIENTS BY EDUCATIONAL LEVEL

EDUCATIONAL LEVEL	FREQUENCY	
	N	%
Uneducated	43	10.75
Primary school education	98	24.5
Middle school education	75	18.75
Higher secondary school	77	19.25
College education	71	17.75
University education	36	09
Total	400	

TABLE 3: PATIENT AWARENESS ABOUT DENTAL IMPLANTS OTHER TREATMENT OPTIONS FOR MISSING TEETH

R e - place - ment Options	Dental im - plants	Bridge/ fixed teeth	Remov - able partial den - tures	No treat - ment for pos - terior missing molars
Yes (%)	152 (38%)	275 (68.75%)	380 (95%)	17 (4.25%)
No (%)	248 (62%)	125 (31.75%)	20 (5%)	383 (95.75%)
Total	400	400	400	400

The association between patients' educational level and awareness about dental implant as treatment option for replacing missing teeth is statistically significant with the P-value = 0.01.

DISCUSSION

Over a decade, replacement of missing teeth with dental implants has become a forefront treatment option in dentistry. Due to high success rate of dental implants, this is leading option among patients with missing teeth. However, patients are less aware about this noble treatment option especially in developing

TABLE 4: DISTRIBUTION OF PATIENTS ABOUT NEGATIVE AND POSITIVE INFORMATION OF DENTAL IMPLANTS

	NEGATIVE INFORMATION		POSITIVE INFORMATION	
	FREQUEN - CY		FREQUEN - CY	
	N	%	N	%
Expensive	99	(65.13)	High esthetic	76 (50.67)
Difficult surgical placement	25	(16.45)	Improved mastication	20 (13.16)
Risk of surgery	05	(3.29)	High success rate	49 (32.23)
Risk of failure	07	(4.61)	No failures	07 (4.60)
No extra benefit compared to dental bridge	09	(5.92)	Total	152
Fear of surgery	09	(5.92)		
Total	152			

TABLE 5: DISTRIBUTION OF PATIENTS ACCORDING TO SOURCE OF INFORMATION ABOUT DENTAL IMPLANTS

Source of Information	FREQUENCY	
	N	%
Dentists	67	44.08
Internet/media	50	32.89
Friends	23	15.13
Other patient	12	7.89
Total	152	

countries like Pakistan where education is low and quality dental care is difficult.

Current study shows low rate of awareness about dental implants among patients. Only 38% participants were familiar to dental implants while 95% participants were aware about removable partial denture as treatment option for missing teeth. High rate of awareness about removable partial denture may due to its low cost and being most common and traditional treatment option for missing teeth in Pakistan.

The awareness about dental implants as treatment

TABLE 6: RELATIONSHIP BETWEEN EDUCATION AND AWARENESS LEVEL ABOUT DENTAL IMPLANT

Educational level	Total	Aware about dental implants	Awareness level %
Uneducated	43	03	6.67
Primary school education	98	07	7.14
Middle school education	75	15	20
Higher secondary school	77	45	58.44
College education	71	47	66.19
University education	36	35	97.22
Total	400	152	

modality in current study (38%) was higher than shown by Kumar et al.¹² which is just 4.83%.% and Chawdhary et al.¹⁸ who reported awareness level 23.24%. Mehmood-Hussain et al.¹⁰ and Schutzhold et al.¹⁶ showed that 13.33 %patients were aware of implants. One reason behind this may be that this study was conducted in an urban area at a tertiary care hospital where most patients with good socioeconomic status and education participated in study.

However, when compared to different studies like Tepper et al., Al Johanny et al., Zimmer et al., Berge and Best, awareness level among patient is very low in current study.⁶ Their studies showed the awareness about dental implants from 66.5% to 77%. In Norway Berge reported even more awareness about dental implant which was 70.1%.¹⁴ In developing country like Pakistan dental implant practice is relatively low and fewer dentists are specialized in this field. Most dentists and quacks give patients other options of tooth replacement than implant.

Regarding patient's information about different positive and negative aspects of dental implant, high cost of dental implant was main reason given by patients to avoid dental implants as treatment option. In this study according to the majority of respondents (65.13%), cost of dental implant was main disadvantage followed by surgical procedure involved or fear of surgery and risk of failure. On the other hand high esthetic was main advantage according to respondents (50.67%) followed by high success rate (32.23%) and

improvement in functions (13.16%). Tepper et al.¹³ reported excessive cost as a significant disadvantage of dental implants. Gbadebo et al.⁵ also reported that the main disadvantage of dental implants was the high cost (45.8%), long treatment (29.1%) and the surgical procedure involved (25.1%) according to patients point of view. Similarly, in the other studies the strongest argument against implant therapy was the high costs. These results are consistent with the other American and Japanese studies which reported the same results.⁶ A study conducted in Belgium showed that the prolonged healing time between implant insertion and final prosthesis was the main reason concern for not choosing implant therapy.^{6,12}

Rustemeyer and Bremerich in their study showed that 54% participant considered aesthetic as advantage of implant while according to 80% of patient function of an implant-supported over dentures as main advantage.⁸ According to Gbadebo et al.⁵ (22.6%) of the patients selected implant-retained prosthesis due to high esthetic and improved function. Tepper et al.⁶ revealed that 19.21% patient thought that implants would survive for life time while 33% thought that they last for at least ten years. A study in Australia showed 44% patient thought that implants needed special oral hygiene or dental care.⁶

In current study the main source of information about dental implants were the professional dentists (44.08%) followed by internet and media. Kumar et al.¹² showed similar results that the dentists were common source of information (38.25%) for patient. Same results were found in the studies done by Johany SA et al.¹¹, Choudhary et al.¹⁸ and Saha A et al.¹³ that dental practitioners are the major source of information for patients. However contrary to these results Zimmer et al.¹⁹ and Berge and Best found media as main source of information for patient about dental implants.¹⁴ In Netherlands, 52% patients came to know about dental implants for the time first from friends and 36% from dentist.⁹ In Japan only 20% patients got knowledge by dentist.⁹ While in USA 77% got information about implant from friends and media.⁹ A recent survey revealed that public media like television and magazines showed some negative reports like implants are for life time leading unrealistic expectation of patients.²⁰ Such non-dental sources of information might negatively affect patient selection of dental implant as the ideal option of teeth replacement. Current study showed a significant association with level of education and awareness about dental implant (p value= 001). Similar results were found in a study done by Awooda et al.⁹ at Saudi Arabia.

CONCLUSION

Present study concludes limited awareness and

knowledge about dental implants as treatment modality among patients. It is difficult for patient to take a decision for the suitable treatment option for missing teeth due to lack of education and awareness about different options. Practitioners either practicing implantology or not, should be fully educated to provide proper information to their patients. Implantology should be included in curriculum of undergraduate level as dental implant practice is growing day by day in Pakistan. Cost of dental implant is main hurdle for patients to choose implant as option, so efforts should be made to decrease the expense of dental implant treatment. Reduced cost will facilitate patients with low socioeconomic status to choose dental implant as treatment option. As this survey was conducted in a subgroup of patients at a tertiary care hospital, further studies should be conducted amongst a larger group of people.

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