

KNOWLEDGE AND AWARENESS OF DENTAL IMPLANTS AMONG PATIENTS PRESENTING AT TERTIARY CARE HOSPITAL, ISLAMABAD

Anum Zulfiqar¹, Sunia Gul¹, Hira Riaz¹, Naseer Ahmad², Syeda Ayesha Absar Hussain¹, Syed Adil Tanvir¹

¹ Department of Prosthodontics, Islamic International Dental Hospital, Islamabad

² Department of Maxillofacial surgery, Shifa International Hospital, Islamabad

ABSTRACT

Objective: To assess the knowledge and awareness of dental implants among a selected number of patients.

Materials and Methods: A descriptive cross-sectional study was carried out in Prosthodontics department at Islamic International Dental Hospital Islamabad, on outdoor basis from May 2020 to Oct 2020. A printed performa in the language Urdu, was handed over to the participants visiting the above-mentioned hospital outdoor, and the results were recorded and interpreted in the SPSS version 22 for Mac IOS.

Results: We divided our participants in three age groups; 25-50 years old (60.3%), 51-75 years old (36.3%), and 76-100 years old (3.3%). Out of 300, 63.7% participants knew about dental implants while 36.3% did not know about them. The reasons why patients preferred this option were: 8% participants said due to better retention, 3.6% said due to better aesthetics, 34% said they are as good as their natural teeth. On the other hand, the reason for not choosing dental implants was: 8% said they are expensive, 7.3% said they had feared from dental surgery, 5.3% were unsure about the final results, and 0.6% of the participants had medical conditions. Pearson chi-square test was applied in cross-tabulations and p value < 0.05 was considered statistically significant.

Conclusion: Results show that participants who were aware of dental implants as a treatment option are relatively significant as compared to those who have no knowledge or awareness regarding them. Maximum information was gained through dentists and the most common reason for opting for dental implants was the consideration that they are as good as their own natural teeth, while the most common barrier for not choosing this option was the high cost of the implant itself.

Keywords: Knowledge & awareness about dental implants, Source of information

INTRODUCTION

In the recent era, the goal of dentistry is to restore the patients' normal functional status, oral health, verbal command, and aesthetics. The most efficient way of regaining all these targets is to implant a missing tooth or teeth which can be considered as optimal option.¹ Among various treatment modalities that are used to replace teeth, dental implants are one

Correspondence:

Dr. Anum Zulfiqar

Department of Prosthodontics, Riphah International University, Islamabad.

Email: anumzulfiqar2991@gmail.com

Contact: :+923239844021

of the most novel approaches for this purpose. The surgical component that interfaces with the bone of the jaw to support a dental prosthesis such as a crown, bridge, denture, maxillofacial prosthesis.² To achieve maximum benefit, it is important to carefully evaluate the knowledge expectations of patient¹ as well as the care, skill, and judgment of clinicians. To achieve denture retention, stability, functional efficiency, and quality of life, implants were primarily used for the treatment of edentulous patients.^{3,4} Dental implants are widely accepted for prosthetic treatment of completely or partially edentulous patients.^{5,6} In addition to the above-mentioned purposes of dental implants

it also provides increased masticatory efficiency, maintenance of bone, improved function, phonetics, and aesthetics.

Previous local studies found that the level of knowledge and awareness of individuals about dental implants was low in the Assier regions (21.7%) and Sudan (28.5%),^{12,14} whereas it was high in Alkharj towns (77.7%) and Kuwait (96.4%).^{8,13} In different countries, the awareness was (60.9%) in Turkey,¹⁵ (39.8%) in Pakistan,¹⁶ (52.6%) in Nepal,¹⁷ (85%) in America,¹⁸ and 79% in Austria.¹⁹ In India, different surveys resulted in different percentages (25%–33%).^{20,21} Majority of the previous studies mentioned that dentists are the major sources of information regarding dental implants, followed by friends.²²

Limited research exists on assessing the knowledge and awareness amongst our Pakistani population, regarding the use of dental implants as a treatment option for patients who want replacement of missing teeth. Hence, this study was conducted in a dental setting to assess the knowledge and awareness towards the use of implants as a treatment option amongst patients visiting the outpatient department of a private dental institution. These patients presented with the chief complaint of several missing teeth and had at least one tooth missing in the oral cavity.

MATERIALS AND METHODS

A Cross sectional study was conducted on a sample size of 300 patients over the period of six months started from May 2020 to October 2020, on patients visiting the Prosthodontics Department of Islamic International Dental Hospital Islamabad. WHO calculator with 99% confidence level, 1% confidence interval was used. After initial examination in the OPD, those patients were selected for the study who had at least one missing from either or both arches. Patients that were children, in mixed dentition period and fully dentate patients were excluded from the study. Data were collected using non-probability purposive sampling technique. Both male and female patients aged between 25 and 100 years were enrolled in the study in 3 age groups. Approval from the ethical and research review board of Islamic International Dental Hospital was taken. After obtaining informed verbal consent from the patients, a questionnaire was made for the evaluation of patient's knowledge about dental implants. The questionnaire form was taken

and revised from data used by Pommer et al in their study.²³ The questionnaires were given to the subjects during their initial visit. The data was recorded in the form of a questionnaire proforma printed in the language Urdu. Recorded data included age of the patient, gender, income, education, occupation, frequency of dental visits, knowledge and awareness of dental implants, level and sources of information regarding implants, as well as expectations and attitudes towards implants.

The interpretation of this data was evaluated in the SPSS version 22 for Mac IOS. Descriptive statistics was calculated for qualitative variables. Frequency and percentage were calculated for qualitative variables i.e., gender and knowledge of different treatment options etc. and were presented as tables.

RESULTS

A total of 300 patients, half of whom were removable partial denture (RPD) wearers and half were complete denture wearers (CDWs), were included in our study. As shown in Table 1, we divided them in three age groups: 25-50 years old (60.3%), 51-75 years old (36.3%), and 76-100 years old (3.3%). Table 2 shows that out of 300 patients, 144 (48%) were males, and 156 (52%) were females. Table 3 shows that out of 300, 63.7% participants knew about dental implants while 36.3% had no knowledge pertaining to them. Table 4 shows the sources of information regarding dental implants were; 45.7% dentists, 12.7% colleagues/ relatives, 7.3% social media, and 1.3% newspaper. Table 5 shows that patients were also stratified with respect to occupation and preference of dental treatment options, removable and fixed dentures were preferred by 19% participants, RPD was preferred by 10.6% patients, while fixed prosthesis was preferred by 1.3% only. Table 6 shows that they were also stratified with respect to literacy status and preference of dental treatment options as

19% chose removable and fixed dentures, 10% chose RPD, while 1.3% chose fixed prosthesis. Patients were also evaluated for reason of choosing a dental implant vs not choosing a dental implant as shown in Table 7 & 8 ($p < 0.05$). Results were 8% of the participants said due to better retention, 3.6% said due to better aesthetics, 34% said they are as good as their own natural teeth, while the reason for not choosing implants were: 8% said they are

Table 1: Age Group distribution, Gender distribution, Knowledge about Implants and Source of Information

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
25-50	181	60.3	60.3	60.3
51-75	109	36.3	36.3	96.7
76-100	10	3.3	3.3	100.0
Total	300	100.0	100.0	
Gender				
Male	144	48.0	48.0	48.0
Female	156	52.0	52.0	100.0
Total	300	100.0	100.0	
Knowledge about Implants				
Yes	191	63.7	63.7	63.7
No	109	36.3	36.3	100.0
Total	300	100.0	100.0	
Source of Information				
Newspaper	4	1.3	1.3	1.3
Relatives/colleagues	38	12.7	12.7	14.0
Dentist	137	45.7	45.7	59.7
Social media	22	7.3	7.3	67.0
NA	99	33.0	33.0	100.0
Total	300	100.0	100.0	

Table 2: Association of Occupation with Replacement Option

Occupation	Replacement Option					P value
	RPD	Fixed Prosthesis	Removable and fixed	All of the above	RPD and complete dentures	
Student	4(12.5%)	0(0%)	5(8.7%)	19(9.45%)	0(0%)	0.00
Housewife	11(34.3%)	4(100%)	23(40.35%)	47(23.3%)	3(50%)	0.145
Govt. employee	2(6.25%)	0(0%)	5(8.7%)	10(4.9%)	0(0%)	0.00
Non-govt. employee	5(15.6%)	0(0%)	8(14.03%)	83(41.29%)	0(0%)	0.00
Daily wages	4(12.5%)	0(0%)	2(3.5%)	0(0%)	0(0%)	0.00
Unemployed	4(12.5%)	0(0%)	9(15.7%)	25(12.4%)	3(50%)	0.00
Businessman	2(6.25%)	0(0%)	5(8.7%)	17(8.4%)	0(0%)	0.00
Total	32(10.6%)	4(1.3%)	57(19%)	201(67%)	6(2%)	

Table 3: Association of Literacy Rate with the Replacement Option

Literacy	Replacement Option					P value
	RPD	Fixed Prosthesis	Removable and fixed	All of the above	RPD and complete dentures	
Illiterate	8(25%)	0(0%)	17(29.8%)	2(0.9%)	3(50%)	0.00
Primary (1-5)	7(21.8%)	0(0%)	5(8.7%)	10(4.9%)	0(0%)	0.00
Secondary (6-10)	7(21.8%)	2(0.6%)	19(33.3%)	33(16.4%)	3(50%)	0.00
Intermediate (11-12)	6(18.7%)	2(0.6%)	6(10.5%)	25(12.4%)	0(0%)	0.00
Graduate	4(12.5%)	0(0%)	8(14.03%)	114(56.7%)	0(0%)	0.006
Post graduate	0(0%)	0(0%)	2(3.5%)	17(8.45%)	0(0%)	0.00
Total	32(10%)	4(1.3%)	57(19%)	201(67%)	6(2%)	0.00

Table 4: Distribution of Implant and Reason for Opting and not opting

Opting for Implant	Reason for Opting				Total
	Better retention	Better aesthetics	Good as own teeth	NA	
Yes	24(100%)	11(100%)	98(96.07)	2(1.26%)	135(45%)
No	0(0%)	0(0%)	2(1.96)	58(35.5%)	60(20%)
Don't know	0(0%)	0(0%)	2(1.96)	0(0%)	2(0.6%)
NA	0(0%)	0(0%)	0(0%)	103(65.1%)	103(34.3%)
Total	24(8%)	11(3.6%)	102(34%)	163(54.3%)	300

	Reason for Not Opting					Total
	Cost	Fear of surgery	Unsure about results	Medical conditions	NA	
Opting for Implant yes	2(8.3%)	0(0%)	0(0%)	0(0%)	133(56.3%)	135(45%)
No	20(83.30%)	22(100%)	14(87.5%)	2(100%)	2(0.84%)	60(20%)
Don't know	0(0%)	0(0%)	0(0%)	0(0%)	2(0.84%)	2(0.6%)
NA	2(8.3%)	0(0%)	2(12.5%)	0(0%)	99(41.9%)	103(34.3%)
Total	24(8%)	22(7.3%)	16(5.3%)	2(0.6%)	236(78.6%)	300

expensive, 7.3% said they have fear from oral surgery, 5.3% were unsure about results and 0.6% had medical conditions.

DISCUSSION

In the recent era, the goal of dentistry is to restore the patients' normal functional status, oral health, verbal command, and aesthetics. The most efficient way of regaining all these targets is to implant a missing tooth or teeth. Although the results of the removable prosthesis are not disappointing, implants are especially preferred treatment when the ridges of a patient are resorbed. The increasing trend towards the implants is considered due to more awareness among the masses about the importance and promising results of the dental implants. As far as the dearth of literature regarding dental implants is considered, we found some literature discussing this topic in our local population, so we organized this study in order trying to fulfil this gap. So those proper recommendations may be provided to improve the health standards in Pakistan.

In our study, a total of 300 participants were included, who were visiting the Prosthodontics department, Islamic International Dental Hospital Islamabad, on outdoor basis. We divided them in three age groups i.e., 25-50 years old (60.3%), 51-75 years old (36.3%), and 76-100 years old (3.3%). Out of 300 patients, 144 (48%) were males, and 156 (52%)

were females. They were stratified with respect to occupation and preference of dental treatment options (discussed in detail in 'Results' section), removable and fixed dentures were preferred by 19% participants, RPD (Removable Partial Dentures) were preferred by 10.6% patients, while fixed prosthesis was preferred by 1.3% only. They were also stratified with respect to socioeconomic status, and knowledge of implants. Out of (34%) who were fully affording (89%) knew about implants. Out of (50%) who were partially affording (59%) knew about implants. Out of (16%) who were non-affording (22%) knew about implants. ANOVA test was applied, and results were found to be significant ($p < 0.05$). And stratification was applied to literacy status with the preference of dental treatment options, 19% chose removable and fixed dentures, 10% chose RPD, while 1.3% chose fixed prosthesis. While 63.7% of participants knew about DIs and 36.3% didn't know about it. The most common source of information was dentists, told by 45.7% (maximum) participants. They were also evaluated for the reason of choosing a dental implant and for not choosing a dental implant option ($p < 0.05$). Results were 8% participants said due to better retention, 3.6% said due to better aesthetics, 34% said they are as good as own teeth, while the reason for not choosing DIs were: 8% said they have high cost, 7.3% said they had fear from surgery, 5.3% were unsure about results, 0.6% were having medical conditions.

So, it was concluded that the female participants were more as compared to male participants (having more dental issues and OPD visits), maximum participants chose removable and fixed dentures as a treatment option when stratified with respect to occupation and literacy status. More participants knew about a dental implant as a treatment option as compared to those who didn't know about it. Maximum information was gained by dentists, and the most common cause of choosing dental implants was the consideration that DIs are as good as their own natural teeth, while the most common barrier for choosing this option was the high cost. Our results were comparable to the previous literature when we matched our results with previous studies e.g.,²⁴ they concluded that more patients (53.6%) were aware of dental implants as compared to those who didn't know. The most common source of information was the dentists (65.7%), while most of the participants (39.4%) considered a fixed replacement to a missing tooth, as the biggest advantage to selecting this option. And the high cost associated with the procedure was the biggest disadvantage as considered by 43.7% of participants. Another study²⁵ (N=203) revealed that 64.5% of the participants were males, while 35.5% were females, age range was 19-36yrs adults only, 65.5% participants were widows, 30% were married, 3.4% were single, and 1% were divorced. Out of 203, 90.60% of participants knew about dental implants, while 9.4% didn't know. And 87.7% wanted to know more about dental implants. Regarding source: 54.10% were having dentists as a source of information, 30.10% were having friends, 6.9% were having newspaper, 8.9% were having other sources. Disadvantages of DIs told by 45.8% participants was high cost, 29.10% told long time for treatment, and 25.10% told the need for surgery.

A study²⁶ (N=152) concluded that 78% of the subjects knew that dental implants can be used to replace missing teeth, 50.7% of the subjects were females, while 49.3% were males. Out of 152 subjects, 48% of the subject came to know about dental implants by the dentists they were visiting, 44% of the participants agreed that placing dental implant for replacement of missing teeth is the best treatment modality for missing teeth, and 44% of the participants agreed that high cost of the treatment of missing teeth by dental implants will prevent them from utilizing this treatment option. While 13% of

the participants were having concept, that implants may last lifelong, and 33% of the participants knew that dental implants are placed within the jawbone which also showed incomplete or incorrect information about dental implants.

A study by Al-Dwairi et al.,²⁷ concluded that 96% of the patients were aware of DIs, major (63.4%) source of information was identified as friends & family, most of the participants i.e., 55.7% preferred DIs due to improvement in function, and 45% of the participants considered high cost as the major barrier for choosing dental implants. Another study by Kohli S et al.,²⁸ also concluded that majority of the participants (80.5%) were willing for DIs if needed in future, the major source (53.6%) of information regarding DIs was dentists, the biggest advantage of DIs, told by maximum participants (55.6%) was as good as own teeth during function, and the major barrier for choosing this option was high cost as told by majority of the participants i.e., 80.2%.

Another study by Pavithra et al.,²⁹ (N=1122) revealed that 3.21 % of the patients were of less than 20 years of age, 54.06 % patients were having age 21-40 years, 35.5 % patients in the age group 41-60 years and 7.2 % patients in the age group > 60 years. 54.46 % of patients were male, 45.45 % of patients were female, and 0.09 % were transgender. Overall (FPD) fixed partial dentures were chosen by 809 participants with the maximum in the age group 21-40 years (40.59%), while the implants were chosen by 312 participants with the maximum at 21-40 years (13.47%). In all the age groups, FPD was the commonly chosen option and dental implant was the less preferred prosthesis (P= < 0.003).

Most of the above-mentioned studies were having almost same results as ours, but some also differ in facts. This difference may be due to differences in participants' age, occupations, literacy rate, region, and personal preferences. Moreover, number of subjects evaluated in different studies also differs, along with time or era in which they were questioned. This study warrants more research in this regard to clarify the facts and it is desired those misconceptions among the general masses should be corrected with the help of public health departments, practicing dentists, social media activists, and private clinics.

CONCLUSIONS

Of the above-mentioned studies, most studies were having results reasonably comparable to our study results. So, it is concluded that the female participants were more as compared to male participants (having more dental issues and OPD visits), maximum participants chose removable and fixed dentures as a treatment option when stratified with respect to occupation and literacy status. More participants knew about a dental implant as a treatment option as compared to those who didn't know about it. Maximum information was gained by dentists, and the most common cause of choosing dental implants was the consideration that DIs are as good as their own natural teeth, while the most common barrier for choosing this option was the high cost. However, we recommend more research in this aspect to rectify the misconceptions among general population.

REFERENCES

- Sharma A, Shrestha B, Chaudhari BK, Suwal P, Singh RK. Knowledge, Awareness, and Attitude Regarding Dental Implants among Dental Interns. *J Nepal Med Assoc.* 2018 Mar-Apr;56(210):607-615.
- Alajlan A, Alhoumaidan A, Ettesh A, Doumani M. Assessing Knowledge and Attitude of Dental Patients regarding the Use of Dental Implants: A Survey-Based Research. *Int J Dent.* 2019 Jul 28; 2019:5792072.
- Fakheran, Esfahani, Omid & Moosaali, Fereshte. (2017). Awareness and knowledge of patients toward dental implants as an option in replacing missing teeth: A survey in Kerman, Iran. *Journal of Periodontology & Implant Dentistry.* 8. 43-48.
- Sohail, Maria & Aslam, Hiba & Ahmed, Naseer & Faruqui, Saba & Maqsood, Afsheen. (2016). Awareness, Knowledge and Reluctance Regarding Dental Implants. *Donnish journals.* 2. 1-4.
- Suprakash B, Ahammed AR, Thareja A, Kandaswamy R, Nilesh K, Bhondwe Mahajan S. Knowledge and attitude of patients toward dental implants as an option for replacement of missing teeth. *J Contemp Dent Pract.* 2013 Jan 1;14(1):115-8.
- Sakshi, Makkar P, Yadav A, Bajaj P, Sharma K, Knowledge, and awareness of dental implants among undergraduate dental students. *IP Ann Prosthodont Restor Dent* 2018;4(1):6-8
- Kola MZ, Alasqah MN, Alharbi B, Alonazi A, Alhedyan FS. Public awareness, information sources and evaluation of oral implant treatment in Alkharj town (kingdom of Saudi Arabia)- a survey-based study. *J Adv Med Dent Scie Res* 2016; 4(6): 114-120.
- Alqahtani F, Alqahtani H, Alshalwi A, Alzahrani H. Patients' Awareness of a Dental Implant as an Option for Tooth Replacement: a Survey in Alkharj Province, Saudi Arabia. *Int J Dent Oral Health* 2015; 1(3): 1-4.
- Alsamosi A, Alshareef R, Almanac AR, Alharbi F, Al Anazi S, Alqahtani K, et al. Patients' Awareness and Perception towards Dental Implants: A Survey Among Out Patients Visiting Rcsdp. *Adv Dent & Oral Health* 2017; 6(5): 1-6.
- Al Hashim H, Saleh F, Al Essa R, Taher Y, Khalifa M, Al Yaseen D, et al. Knowledge and Awareness of Dental Implants: A Survey Done among Saudi General Public. *Donn J Dent Oral Hyg* 2017; 3(4): 19-26.
- Al-Johany S, Al Zoman HA, Al Juhaini M, Al Refeai M. Dental patients' awareness and knowledge in using dental implants as an option in replacing missing teeth: A survey in Riyadh, Saudi Arabia. *Saudi Dent J* 2010; 22(4):183-8.
- Areashi A, Algarni K, Alwadie M. Knowledge and Attitude of Patients toward Dental Implant in Asser Region, Saudi Arabia: A Cross-Sectional Comparative Study among Patients with and without Implants. *EC Dental Science* 2017; 13(5): 222-7.
- Al-Musawi A, Sharma P, Maslamani M and Dashti M. Public Awareness and Perception of Dental Implants in Randomly Selected Sample in Kuwait. *J Med Imp Surg* 2017; 2: 116-20.
- Awooda EM, Eltayeb AS, Hussein SA, Dayelnaiem SI, Abdelhamied MA, Mohamed LA, et al. Knowledge, Attitude and Acceptance of Dental Implants among Patients Attending Khartoum Dental Teaching Hospital. *IOSR-JDMS* 2014; 13 (11); 19-23.
- Tomruk CÖ, Özkurt-Kayahan Z, Şençift K. Patients' knowledge and awareness of dental implants in a Turkish sub-population. *J Adv Prosthodont* 2014; 6(2): 133-137.
- Malik A, Afridi JI and Ehsan A. Knowledge, perception, and choice of dental implants as a treatment option for patients visiting the University College of Dentistry, Lahore- Pakistan. *Pak Oral Dent J* 2014. 34(3): 560-563.
- Suwal P, Basnet BB, Shrestha B, Parajuli PK and Singh RK. Knowledge, attitude, and awareness regarding dental implants among patients visiting a university hospital and its teaching districts. *J Dent Implant* 2016; 6(2): 57-61.
- Deeb G, Wheeler B, Jones M, Carrico C, Laskin D, Deeb JG. Public and Patient Knowledge about Dental Implants. *J Oral Maxillofac Surg* 2017; 75(7):1387-91.
- Pommer B, Zechner W, Watzak G, Ulm C, Watzek G and Tepper G. Progress and trends in patients' mindset on dental implants. I: level of information, sources of information and need for patient information. *Clin Oral Implants Res* 2011; 22(2): 223-9.

20. Kumar S, Chauhan A. Knowledge and Awareness of Dental Implants in India: An Exploratory Study. *Int J Oral Health Med Res* 2015; 2(4):29-33.
21. Suprakash B, Ahammed AR, Thareja A, Kandaswamy R, Kumar N and Bhondwe MS. Knowledge and Attitude of Patients toward Dental Implants as an Option for Replacement of Missing Teeth. *J Contemp Dent Pract* 2013; 14(1):115-8.
22. Begum SS, Devaki V, Balu K, Ajay R, Kumar PA. Awareness about mandibular implant overdentures among edentulous patients in Namakkal district: A hospital-based study. *J Indian Acad Dent Spec Res* 2017; 4(2): 33-7.
23. Pommer B, Zechner W, Watzak G, Ulm C, Watzek G, Tepper G Progress and trends in patients' mindset on dental implants. I: level of information, sources of information and need for patient information. *Clin Oral Implants Res* 2011;22:223-229.
24. Padhye NM, Bhange PD, Mehta LK, Khimani SM. Patient awareness and perceived cost of dental implants for replacement of missing teeth: A survey in an Indian metropolitan population. *J Dent Implant.* 2021 Jan; 9(1)30-36.
25. Alanazi S, Alduaiji KT, Alenazi A, Assiri MY, Almagham KS, Alnwaihel AK. Knowledge, Attitude, and Awareness Regarding Dental Implants among Young Patients Visiting Al-Farabi Hospital. *Oral health and dental management.* 2017 Jan; 1-6.
26. Hareem F, Yadalam U, Narayan SJ, Apporva M, Sheetal S. Awareness and Knowledge Among the General Population About Dental Implants As An Option In Replacing Missing Tooth: a Questionnaire Survey (in Bangalore). *International Journal of Scientific Research.* 2018 Jan;7(1)
27. Al-Dwairi ZN, El Masoud BM, Al-Afifi SA, Borzabadi-Farahani A, Lynch E. Awareness, attitude, and expectations toward dental implants among removable prostheses wearers. *J Prosthodont.* 2014 Apr;23(3):192–7.
28. Kohli S, Bhatia S, Kaur A, Rathakrishnan T. Patients awareness and attitude towards dental implants. *Indian J Dent.* 2015;6(4):167–71.
29. Dave PH, Rakshagan V, Ramakrishnan M. Preference of patient opting for implant vs FPD. *Int. J. Pharm. Sci. Res.* 2020 Sept.19(11) :946–51.