

Knowledge and Awareness of Dental Implants in Indore: An Exploratory Study

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ABSTRACT

Objective: To assess the level of knowledge and awareness towards the use of implant treatment among patients in Indore. **Methods:** The study was conducted on 620 patients aged more than 15 years, with a pretested questionnaire. **Results:** 25.8% of the patents were aware about dental implants. Esthetics (70%) was most common factor for selection of implants while high cost (70%) was most frequent argument against them. Dentists were identified as main source of information provider. 85% were interested to know more about implants and 69.4% showed a positive attitude to undergo implant treatment in future but felt insurance coverage should be provided. **Conclusions:** Majority of the patients were unaware of dental implants as a substitute for replacement of missing teeth. Dental health education involving dentists can be utilized for effective circulation of information to create awareness towards implant treatment. High cost was identified as main barrier for undergoing implant treatment which could be overcome if insurance coverage is provided.

KEYWORDS: Implants, Insurance, Health education

INTRODUCTION

Dental implant is an artificial tooth root fixed into the jaws to hold a replacement tooth or bridge. They are an ideal option for people in good general oral health who have lost a tooth or teeth due to periodontal disease, failure of endodontic procedure, an injury or for any other reason.¹ Dental implant treatment has come into focus, since it provides excellent long term results in rehabilitation of partially or completely edentulous patients.²

Dental implants were originally used for the treatment of edentulous patients and are associated with improved denture retention, stability, functional efficiency, and quality of life.³⁻⁵ Implant retained prosthesis provides greater stability, improved biting and chewing forces and higher client satisfaction than a conventional denture.⁶⁻⁹ Various studies have been done to assess the biocompatibility of different implants and it was found that dental implants are satisfactory replacement for the teeth and made of materials which are well accepted by the body.^{10,11} They help people to enhance their physical feature by making them less conscious when they smile, eliminating pain while chewing, and also aligning teeth. Currently, dental implants are widely accepted as a prosthetic treatment of completely or partially edentulous patients.¹²

Information regarding the use of dental implant can be obtained by various means like television, journals, friends, internet, advertisements etc. but some studies have shown that the most reliable source of information is undoubtedly dentist.^{13,14} Dentist can give information as well as create awareness regarding the use of dental

implants and can easily solve the questions or query of the patient regarding the dental implants.

In India, there are various means available for replacement of missing teeth like RPD/ FPD/ Implants/ Complete denture. Among these, implant treatment has come into focus, since it provides excellent long term results in rehabilitation of partially or completely edentulous patient. In India, the use of dental implants is limited by the general population due to lack of knowledge and awareness. Their use is also restricted due to lack of affordability and accessibility. Limited study exists on assessing the knowledge and awareness regarding the use of dental implants by the patients who are willing to go for replacement of missing teeth. Hence, this study was conducted in a dental setting to assess the knowledge and awareness towards the use of implant treatment amongst the patient visiting the OPD of a private dental institution, Indore, with the chief complaint of missing teeth and had at least one tooth missing in oral cavity.

MATERIALS AND METHODS

We conducted a descriptive cross sectional study in the month of March-August (6 months), 2013. This study was carried out on a sample size of 620 patients, who visited the OPD of a private dental Institution in Indore with the chief complaint of replacement of missing teeth and had at least one tooth missing in oral cavity.

Ethical clearance to conduct the study was taken from the ethical committee of Sri Aurobindo Institute of Medical Sciences. A well informed consent was taken from the participants. A pilot study was conducted with a self-administered questionnaire and based upon the findings

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of pilot study; a total sample size of 620 was finalized. The findings of the pilot study were used for sample size calculation, and necessary modifications in the questionnaire were made based upon the difficulties encountered in filling the questionnaire. A judgment sampling technique was employed and all the patients visiting OPD and above 15 years of age, with the complaint of replacement of missing teeth and had at least one tooth missing in oral cavity, and willing to participate in the study were included. Patients below 15 years of age and not willing to participate were excluded.

The study was carried out with a self-administered questionnaire. The questionnaire was translated into Hindi language. The Back translation of questionnaire was done and verified by experts in both the languages. The validity of the questionnaire was checked and verified and it was found to be good. This questionnaire had the ability to measure the knowledge and awareness about dental implants as a substitute for replacement of missing teeth. The questionnaire was distributed by a single examiner to the participants who voluntarily agreed to participate in the study. Any difficulties during the selection of choices were clarified by the same examiner and uncompleted questionnaire were omitted from the study and replaced by another patients' questionnaire. The questionnaire consisted of three parts. The first part collected information about the socio-demographic characteristics, oral hygiene practices and adverse habits of the patients. The second part dealt with patients' knowledge and attitude towards replacement of missing teeth and the third part of the questionnaire dealt with awareness regarding source of information, acceptance and perceived cost of dental implants as a treatment modality for replacement of missing teeth.

Socio-economic status was calculated according to Modified Kuppuswamy scale.¹⁵ Based upon patients education, occupation and monthly income, the socio economic status of the patient was tabulated and compiled into upper, middle and lower classes.

All statistical analysis was performed using SPSS version 20 and p value ≤ 0.05 was taken as statistically significant. Frequency distribution analysis was performed to know number of individuals in each category.

RESULTS

A total of 620 patients voluntarily agreed to participate in the study. The mean age of sample was 44.34 ± 17.03 years.

The study population comprised of 51.8% males and 48.2% females. Majority of them belonged to either middle class (51.9%) or lower class (34.2%). Majority (81.8%) of them used toothbrush and paste to maintain oral hygiene. 38.9% of the patients' were using some form of smoke or smokeless tobacco, 15.8% had habit of alcohol consumption while 45.3% had no deleterious habits. (Table 1)

| Factor | Categories | N (%) |
|------------------------|---|-------------|
| Age | 15-24 years | 93(15%) |
| | 25-34 years | 99(16%) |
| | 35-44 years | 108 (17.4%) |
| | 45-54 years | 122(19.7%) |
| | 55-64 years | 125(20.2%) |
| | 65-74 years | 73(11.8%) |
| Gender | Male | 321(51.8%) |
| | Female | 299(48.2%) |
| Socio economic status | Upper class | 86 (13.9%) |
| | Middle class | 322 (51.9%) |
| | Lower class | 212 (34.2%) |
| Oral hygiene practices | Tooth brush and paste | 507 (81.8%) |
| | Tooth brush and powder | 52 (8.4%) |
| | Other methods (burnt tobacco, finger, ash, datun etc) | 61 (9.8%) |
| Adverse habits | Tobacco (Smoking or smokeless form) | 241 (38.9%) |
| | Alcohol consumption | 98 (15.8%) |
| | No deleterious habits | 281 (45.3%) |

Table 1: Socio demographic data, oral hygiene practices and adverse habits of study population.

In response to their knowledge and awareness of dental implants as a treatment modality towards replacement of missing teeth, 50% of the patients' reported that they will always get their missing teeth replaced while 30.3% reported that they will get it replaced only if space is visible. 24.7% were aware about removable partial dentures(RPD), 25.3% were aware of Fixed partial dentures (FPD), 16.5% were aware of Complete dentures (CD) and 29.5% were aware of all modes for replacement of missing teeth. 4% of them were unaware of all these various modes for replacement of missing teeth. 25.8% of the patients' were aware of dental implants as a substitute for replacement of missing teeth. These 160 patients' (25.8%) who were aware of dental implants were further interviewed to assess their knowledge and awareness towards implants treatment. 45% of the patients' believed that implants placement is effective over other methods for replacement of missing teeth. 70% of the patients agreed that implants provide better esthetics, which is the major advantage of undergoing implant treatment while majority (70%) believed that high cost was the major barrier in its use. (Table 2)

In response to the questions regarding source of

| Questionnaire | Categories | Response N (%) |
|--|------------------------------|----------------|
| Replacement of missing teeth | Yes, always | 310 (50%) |
| | Yes, if space visible | 188 (30.3%) |
| | No | 122 (19.7%) |
| Different ways to replace missing teeth | Removable partial denture | 153 (24.7%) |
| | Fixed partial denture | 157 (25.3%) |
| | Complete dentures | 102 (16.5%) |
| | All of above | 183 (29.5%) |
| | None of above | 25 (4%) |
| Knowledge of implants as a substitute for replacement of missing teeth | Yes | 160 (25.8%) |
| | No | 460 (74.2%) |
| If yes, effectiveness of implants over other methods | More | 72 (45%) |
| | Equal | 28 (17.5%) |
| | Less | 13 (8.1%) |
| | Don't know | 47 (29.4%) |
| If yes, major disadvantage of implants | High cost | 112 (70%) |
| | Need for surgery | 32 (20%) |
| | Long treatment time | 16 (10%) |
| If yes, major advantage of implants | Fixed replacement better | 16(10%) |
| | Better esthetics | 112(70%) |
| | Better function | 16(10%) |
| | No grinding of natural teeth | 16(10%) |

Table 2: Patient response to questions regarding awareness and knowledge of dental implants as a treatment modality for replacement of missing teeth

information, acceptance and perceived cost of dental implants as a treatment modality for replacement of missing teeth, dentists (43.8%) were identified as prime source of information followed by friends/relatives (21.2%). Nearly half of the patients' (48.1%) were not aware about the life span of implants. Majority (83.1%) of the patients' were ready to shell out up to Rupees (Rs) 25,000 for undergoing implant treatment if required by them. 85% of the patients expressed their willingness to know more about implants while 69.4% of the patients showed a positive attitude to get their missing teeth replaced with implants in future. The patients believed that high manufacturing cost, high dentist cost, long duration of treatment were major factors for implants being so costly placed and 91.3% demanded insurance coverage for implant treatment. (Table 3)

DISCUSSION

This was a descriptive, cross sectional hospital based study done in a private dental teaching institution in Indore city, Central India. The sample size comprised of 620 patients who reported to the dental hospital with the chief complaint of replacement of missing teeth, had at least one tooth missing, and voluntarily agreed to participate in the study

A self-administered questionnaire was used to assess knowledge and awareness towards the use of implant

| Questionnaire | Categories | Response N (%) |
|---|--------------------------|--------------------|
| If yes, source of knowledge about implants | Newspaper/magazines | 10 (6.2%) |
| | Television | 20 (12.6%) |
| | Friends/relatives | 34 (21.2%) |
| | Patients | 6 (3.8%) |
| | Internet | 5 (3.1%) |
| | Dentist | 70 (43.8%) |
| | Advertisements | 12 (7.5%) |
| | Others | 3 (1.8%) |
| | If yes, life of implants | Less than 10 years |
| 10-20 years | | 19 (11.9%) |
| 21-25 years | | 23 (14.4%) |
| More than 25 years | | 24 (15%) |
| Don't know | | 77 (48.1%) |
| If yes, extra money for implants | Less than 10,000 Rs | 65 (40.6%) |
| | 10,000-25,000 Rs | 68 (42.5%) |
| | 25,000-50,000 Rs | 22 (13.8%) |
| | More than 50,000 Rs | 5 (3.1%) |
| If yes, like to know more about implants | Yes | 136 (85%) |
| | No | 24(15%) |
| If yes, replace missing teeth with implants in future | Yes | 111 (69.4%) |
| | No | 49 (30.6%) |
| If yes, insurance coverage for implants | Yes | 146 (91.3%) |
| | No | 14 (8.7%) |

Table 3: Patients response to questions regarding source of information, acceptance and perceived cost of dental implants as a treatment modality for replacement of missing teeth.

treatment. Same questionnaire was used by Tepper G et al.^{13,14} in their study done on Austrian population to assess implant acceptance, patient perceived cost and patients' satisfaction towards implant treatment. Based upon the difficulties encountered in pilot study necessary modifications were done in the questionnaire and a pilot study was conducted to validate all items in the questionnaire before using them in the main survey.

The study showed that 25.8% of the total patients' were aware of dental implants as a treatment modality for replacement of missing teeth. The results were similar to the findings of Chowdhary R et al.¹⁶ wherein their study

done in Indian urban population found that only 23% of Indian urban populations were aware of dental implants. Similar findings were reported by Suprakash B et al.¹⁷ wherein their study they found that 33% of the patients visiting a dental teaching institution knew about dental implants. A similar low level of knowledge and awareness was reported by Satpathy A et al.¹⁸ wherein their study done on 723 patients in Bhubaneswar found that only 15.91% of patients were aware of this treatment modality. Various studies done to assess the knowledge of implant treatment as a substitute for replacement of missing teeth in other countries have reported a high level of knowledge and awareness towards implant treatment.^{19,20} However, in Indian scenario, a low level of knowledge and awareness was reported probably because majority of the patients attending the dental teaching institution belonged to low socioeconomic status and had lower level of education and the use of implants as a substitute for replacement of missing teeth is not in routine dental practice.

In the present study, majority (70%) of the patients reported high cost of implants as a major barrier in their use. Similar findings were reported Suprakash et al.¹⁷ Zimmer CM et al.²¹ and S Al Johany et al.¹⁹ wherein they found high cost as major factor in preventing the patients from the use of implants. In the present study high manufacturing cost, high dentist cost, long duration of treatment and involvement of surgical procedures were identified as major factors for high cost of implants.

70% of the patients who were aware of dental implants reported that better esthetics was the major advantage of implants treatment. Similar findings were reported by Zimmer CM et al.²¹ wherein their study, they found esthetics as most common factor for selection of implants and high cost as most frequent argument against their use.

In the present study dentists were identified as main source of information providers followed by friends or relatives. Similar findings were reported by Suprakash B et al.¹⁷ Pragati K et al.²² and Satpathy A et al.¹⁸ wherein their study they found dentist to be main source of information to create awareness about dental implants. The findings reveal that patients come to know about various modes of replacement of missing teeth including implants only when they visit dental office for dental treatment unlike other countries where electronic media like television and internet are main source of information.^{20,21,23}

48.1 % of the patients' who were aware of dental implants were not aware of life span of implants. Dental health education should be provided to create awareness about dental implants as a substitute for replacement of missing teeth.

In the present study, 85% of the patients showed a positive attitude to know more about implants while 69.4% of the patients agreed to undergo implant treatment in future provided that the cost is reduced and sufficient insurance coverage is given. When the distribution was checked across all age groups, gender,

educational status, and occupation the results were found to be consistent which indicates the yearning in dental patients about more information about dental implants.

Undergoing an implant treatment is a costly procedure and majority (91.3%) of the patients' felt that insurance coverage is needed for undergoing such treatment. Similar findings were reported by Chowdhary R et al.¹⁶ wherein 96% of the population agreed that insurance coverage is required for undergoing implant treatment.

CONCLUSION

Majority of the patients were unaware of dental implants as a substitute for replacement of missing teeth. Dentists were identified as main source of information provider and hence dental health education involving dentists can be utilized for effective circulation of information to create awareness towards implant treatment. High cost was identified as main barrier for undergoing implant treatment which could be overcome if insurance coverage is provided.

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