

A Comparative and a Qualitative Analysis of Patient's Motivations, Expectations and Satisfaction with Dental Implants

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ABSTRACT

Introduction: Dental Implants are the norm of today's prosthetic and restorative dentistry but, is it the answer for edentulism that can affect both individual's appearance and functioning, therefore having an impact on the psychological and the social well being of the person is an ongoing quest. Also, patient's beliefs and personal expectations for dental implants vary, which may influence the treatment outcome, thus emphasizing the importance of a good clinician-patient communication. Hence in this study a qualitative analysis was carried out with an earnest attempt to gain an insight into patient's motivations, personal expectations, satisfaction and impact of clinician's motivation for implant maintenance.

Aim: To learn about patient's expectations and their level of satisfaction from dental implants. To know the impact of clinician's instructions and motivation for implant maintenance, with the patient's level of understanding and compare the level of motivation for implant maintenance and care provided by a dentist with Bachelor's degree to a dentist with a Master's degree.

Materials and Methods: A 30 systemically healthy patients who had undergone implant treatment (aged 25-65 years)

were considered and divided into two groups: Group A: 15 patients in whom implant placement was done by a dentist with Bachelor's degree (24 years, 18 years in general and implant practice respectively) and Group B: 15 patients in whom implant placement was done by a dentist with a Master's degree (Periodontics; 20 years, 17 years in general and implant practice respectively). A qualitative analysis with the help of appropriate questionnaires comprising of multiple choice questions specifically designed for this purpose and few open ended questions was carried out with an earnest attempt to gain an insight into patient's motivations, personal expectations, satisfaction and impact of clinician's motivation for implant maintenance.

Results: Patients motivations for seeking implants and their expectations of treatment differed. Dental implants had met the patient's pre-treatment expectations and they were satisfied. Variations in the knowledge on the maintenance of the implants by the patients and the kind of maintenance care provided by the dentists varied between the two groups.

Conclusion: In regard to the patient's compliance towards dental implants, a clinician must ensure that patient's understand the different demands.

Keywords: Communication, Dental implantology, Personal satisfaction, Surveys and questionnaires, Treatment outcome

INTRODUCTION

Edentulous state, a consequence of tooth loss can be attributed to caries, periodontal disease or injury which not only affects the appearance but also the functioning and thereby having a great impact on psychological and social well being of the individual. However, owing to increase acquaintance with improved oral health care and with the wider availability of prosthetics and developments in dental technology edentulous spaces due to missing teeth are rarely seen. Straight, clean-looking teeth have become more realistic and have been widely promoted in media as what society considers being an acceptable standard for dental appearance [1]. Thereby an impending pressure to have a restoration mimicking the natural has become predominant; and hence various replacement treatment modalities like Complete Dentures (CD), Removable Partial Dentures (RPD), Fixed Partial Dentures (FPD) and dental implants have cropped up.

Dental implantology in recent decades has developed into a prospering component of dentistry and the number of dental implants inserted annually worldwide has been estimated to come close to a million [2]. However, the level of information available to patient's about dental implants as a treatment option for replacement of missing teeth is often incomplete.

Most of the people opine that implants have an answer to all their oral related problems with the consensual feeling of implants are like natural teeth. Although, the terms 'natural' and 'normality' differs; for some it is function related, while for others it's the appearance that matters. Apart from these, patients' personal expectations from dental implants vary which strongly predicts satisfaction with dental treatment outcomes. Therefore, it is important to identify and understand what patients expect and take steps if required to correct any misunderstanding or unrealistic expectations [3].

Preventive care and routine assessment are primordial for a good and a long-term prognosis of a dental implant. An effective maintenance regimen is mandatory to maintain the health of the peri-implant tissues [3]. The cause of concern would be if the patient's consider the dental implants similar to their natural teeth and treat them like-wise, failing to follow the recommended specialist care. Therefore, what becomes important is a good dental practitioner - patient communication, not only for the long term success of the implant therapy but also in assessing patient's motivations for seeking implants and their expectations and satisfaction of treatment. To ascertain all these factors this study was conducted taking into consideration the perspectives of the patients to meet the final end point.

AIM

The aims of the study were to assess patient’s motivations, awareness and information about dental implants and other prosthetic modalities. Also, to learn about patient’s expectations and their level of satisfaction from dental implants, to know the impact of clinicians instructions and motivation for implant maintenance, with the patient’s level of understanding and to compare the level of motivation for implant maintenance and maintenance care provided by a dentist with Bachelor’s degree to a dentist with a Master’s degree.

MATERIALS AND METHODS

Systemically healthy patients who had undergone an implant treatment (two stage surgery) and restoration at KLE Society’s Institute of Dental Sciences, Bangalore and at a private dental clinic in Bangalore were enrolled into the study. A total of 30 patients (aged 25-65 years), from a well educated background and an upper middle to upper high range of socioeconomic status [4] and also who were willing to participate, were recruited for the study.

The selected patients were divided into two groups:

- Group A: Fifteen patients in whom dental implants were placed by a dentist with Bachelor’s degree. (24years,18years in general and implant practice respectively).
- Group B: Fifteen patients in whom dental implants were placed by a dentist with a Master’s degree (M.D.S Periodontics; 20 years, 17 years in general and implant practice respectively).

Both the dentists (Bachelor’s degree and Master’s degree, Periodontics) were into both academics and private practice. Patient’s motivations, expectations and satisfaction with dental implants were assessed using questionnaires comprising of multiple choice questions specifically designed for this purpose and few open ended questions were added or modified as necessary to get a better insight of the related topic. The content validity of the questionnaire was assessed by a panel of six dental educators. The purpose was to depict those items with a high degree of agreement among experts. Aiken’s V was used to quantify the concordance between experts for each item. The Aiken’s V value thus obtained was 0.97. In order to assess the reliability of questions to determine the usage of internet resources for oral health – related information, the split half technique was used and Cronbach’s alpha was calculated. The correlations between the items ranged from 0.55 to 0.67 Informed consent was taken from every patient prior to the commencement of interview.

STATISTICAL ANALYSIS

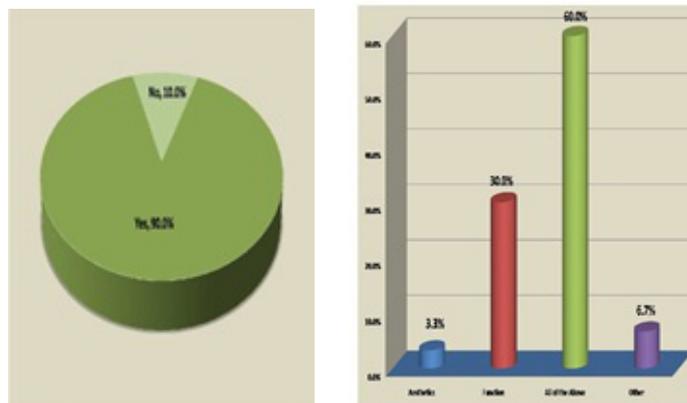
Statistical significance between parameters was checked by Pearson chi-square test. Differences above the 95% confidence interval were regarded as statistically significant.

RESULTS

The most common first hand source of information on the subject of implants was the dentist and in most of the cases (90%) the dentists had motivated the patients to undergo dental implant treatment [Table/Fig-1]. However, the motivation to replace the missing teeth or undergo dental implant therapy varied; some were appearance oriented while others were more concerned with functioning or both [Table/Fig-2].

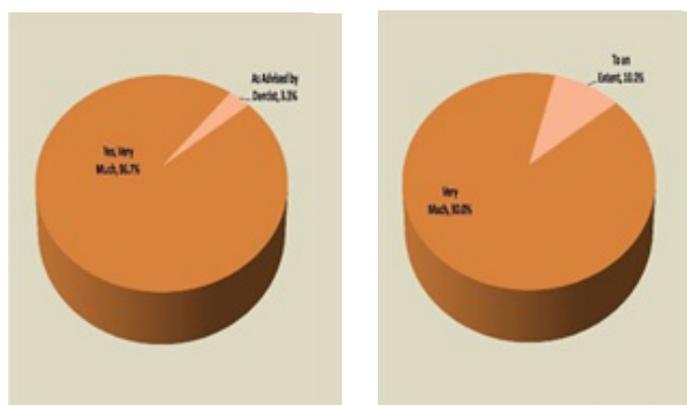
Majority of patients (96.7%) participating in the study falling in the age group of 30-40 years felt that implants is a better prosthetic alternative for replacing missing teeth and it met up to their pre-treatment expectations [Table/Fig-3,4].

Concerning maintenance care of dental implants, significant differences on the knowledge of maintenance of implants as compared to natural teeth was found between the two groups. Significant differences between both the groups was also found



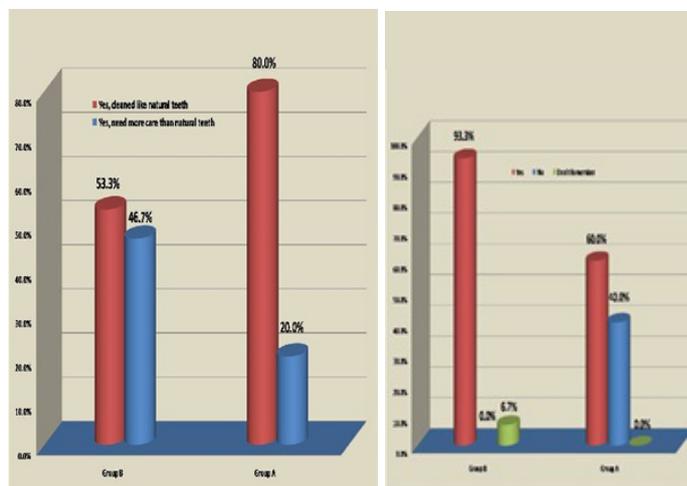
[Table/Fig-1]: Response to question 'Did your dentist motivate you to undergo dental implant treatment?' (N=30).

[Table/Fig-2]: Response to question 'Why did you think it was important to replace missing teeth /tooth?' (N=30).



[Table/Fig-3]: Response to question 'Do you feel dental implants are better than the other prosthetic alternatives that you are aware of for replacing missing teeth?' (N=30).

[Table/Fig-4]: Response to question 'Did dental implant treatment meet up to your pre treatment expectations?' (N=30).



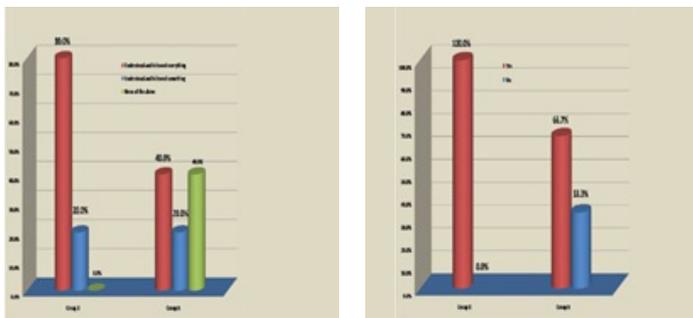
[Table/Fig-5]: Response to question 'Do you think that implants have to be maintained in the same manner as your natural teeth?' p-value: 0.121 (NS)

[Table/Fig-6]: Response to question 'Were any instructions given to you by your dentists on maintenance of dental implants?' p-value: .018 (S)

regarding the instructions given to patients on maintenance by the dentists, the extent of understanding and following of instructions by the patients and the recall visits for evaluation after the implants placement [Table/Fig-5-8].

DISCUSSION

Dental implant therapy has been in the front of clinical practice for the recent decades. The number of dental implants inserted on an annual basis worldwide has been estimated to close to a million. However, the level of information available to patients about dental implants as a treatment option for replacement of



[Table/Fig-7]: Response to question "Till what extent did you understand and follow the instructions?"
p-value: 0.018 (S)

[Table/Fig-8]: Response to question "Were you called for re-evaluation once dental implants were placed?"
p-value: 0.014 (S)

missing teeth and its maintenance is often fragmentary. Also, relatively little is currently known about patient's expectations of dental implants and their satisfaction with the same. In the present study the questionnaire was structured based on the following three criteria's:-

- 1) Patients' awareness and motivations regarding dental implants.
- 2) Their expectations and satisfaction with dental implants.
- 3) Knowledge on maintenance of dental implants.

Patient's awareness and motivations regarding dental implants:

Majority of patients who participated in the present study felt it is important to replace the missing teeth and were aware of the various replacement modalities for missing teeth (CD, RPD, FPD or Dental Implants). However, on comparison their awareness regarding dental implants was less and in majority of the cases the dentist was the first hand source of information and in 90% of the cases the dentist had motivated the patients to undergo an implant treatment [Table/Fig-1]. Peer, media or internet was seldom the first source. Study conducted by Rustemeyer et al., concluded that 41% of patients were informed by the dentist and the contribution of media or internet to respondent's information was as low as 13% [5]. However, Kaptein et al., differed with the results of 52% of patients receiving information first from the press or from friends as compared to 36% who received from the dentist [6].

The perception of normality or the motivations for the dental implant treatment varies; some are appearance focused while others are more concerned with function [3]. In the present study majority i.e. 60% of patients gave priority to both function and aesthetics whereas only 30% patients gave priority to function [Table/Fig-2]. This was observed in the patients who had undergone multiple implant therapy in both the anterior as well as in the posterior maxillary and mandibular areas. Only 3.3% of patients were concerned with aesthetics, as the teeth lost were in the maxillary anterior region. Patients felt that altered appearance due to missing teeth have a great impact on their daily life and were embarrassed to smile and talk in public.

Rustemeyer et al., in their study reported that 68% of the women and 41% of the men felt the outer appearance of an implant to be very important, but functionality was still a more decisive factor for 84% of the women and 74% of the men [5]. In a similar study conducted by Kaptein et al., the restoration of the function was considered a more important motive for dental implants [6] whereas Zimmer et al., reported that aesthetics was the most important factor [7].

Questions pertaining to the changes in dental appearance due to aging (yellowing of teeth) were also asked. Most of the patients (56.7%) were aware about the changes in dental appearance due to aging and few felt that implants (16.7%) could be one of the ways of restoring the change in color of teeth.

In the present study though patients were aware about other treatment modalities for replacement of missing teeth, the majority (60%) opted for implant placement as the first treatment option, while the rest either opted for RPD or FPD as their 1st treatment modality owing to either high cost of implants (16.7%), apprehension about the surgical procedure, longer duration of time (8.3%) or simply they were not aware about the dental implants (75%).

Expectations and satisfactions: The patient's expectations and motivations opting for dental implant treatment vary depending on the pre-treatment expectations which obviously would have a great impact on the level of satisfaction of the treatment outcome. Hereby, it is important for the dentist to understand the patient's expectations from various types of replacement modalities and thereby explain and clarify the misunderstandings and the unrealistic expectations for the same [3].

A 96.7% patients [Table/Fig-3] in the present study felt that implant is better than other prosthetic alternative for replacing missing teeth with the advantages of being a fixed prosthesis, looks tooth like (13.3%), has good function (13.3%), does not affect the integrity of the adjacent tooth (6.75%) or majority of them agreed with all the above mentioned advantages (66.7%). Most of the patients had expected that implants will help to overcome various psychological, functional and social difficulties which they experience due to missing teeth. In 90% of cases in the present study, the dental implant treatment had met the patient's pretreatment expectations [Table/Fig-4]. Allen et al., found that many edentulous patients expected implants would return their chewing ability like that of a fully dentate individual, but did not examine expectations around social and psychological issues [8]. Another study conducted by Bjarni et al., assessed the patients satisfaction following implant therapy concluded that more than 90% of the patients were completely satisfied with implant therapy [9].

The fixed nature of implants was found by the patients to be particularly appealing, since to remove an appliance for cleaning or to taste/eat is considered problematic and displeasing. Furumya et al., reported that patient's with implant supported fixed denture showed significantly better oral health related quality of life in comparison to that of removable partial dentures. This could be attributed to the convenience and ease of maintenance of a fixed prosthesis and also restoring a feeling of normality as it felt more like a natural body part [10]. The attitude of the patient towards the dentures was less favourable than dental implants in the present study in terms of aesthetics. Patients felt that implants have a natural appearance as that of teeth and would enable them to restore an appearance more like normal. Implants are generally viewed more favourable, in terms of stability, function and aesthetics and hence are becoming increasingly popular [5].

Some of the patients in the present study had opted for RPD or FPD as their 1st treatment modality. However, since they were highly unsatisfied with the previous treatment they had undergone, they opted for implants as a replacement later on.

The present study also recorded the experience of the patients during implants placement. Patients were either apprehensive (13.3%) or feared (6.7%) the surgical procedure of the implant placement which was relieved on communication with the dentist. A 30% had experienced intraoperative pain and discomfort, whereas for the rest the experience was uneventful.

Knowledge on maintenance of dental implants: After a successful implant therapy, the patient should be presented an individually tailored maintenance care program which is of great importance for the long term success of the implants. It is important to assess mobility, probing depth, bleeding on probing and suppuration during a recall visit. Radiographic and microbiological parameters are to be added, depending on the primary clinical findings and in addition, the occlusion of the superstructures

should not be overlooked. A good patient-clinician communication is imperative for the motivation of implant maintenance.

This study also highlights the patient attitude toward the maintenance care of dental implants. Majority of the patients i.e. 66.7% had the perception that implants are to be cleaned in the same manner as that of the natural teeth and only 33.3% felt that extra care is needed for the dental implants.

Also, a difference in the attitude toward maintenance care ($p < 0.01$) was found between the patient who had been treated by a dentist with a bachelor's degree (Group A) and the dentists with a master's degree (Group B). In group A 80% patients felt that implants have to be maintained and cleaned in the same manner as the natural teeth as compared to 53.3% of patients in group B. Only 20% patients in group A had the knowledge that implants require more maintenance care than the natural teeth as compared to 46.7% of patients in group B indicating that the patients treated by the specialist had been made more aware about the maintenance care of dental implants [Table/Fig-5].

The instructions given to patients on maintenance of dental implants by the dentists and the extent till what the patients had understood the instructions was also considered [Table/Fig-6,7]. Majority of patients in group B had recalled that they had been given instructions on maintenance of implants (93.3%) and were called for re-evaluation once the dental implants were placed (100%) [Table/Fig-8]. Only 60% patients in group A were given instructions regarding the implant maintenance and only 66.7% were called by the dentist for re-evaluation. A significant difference in the kind of instructions given on implant maintenance and patients called for re-evaluations between the two groups was found ($p < 0.01$). In the present study it was observed that the specialists (dentist with master's degree, Periodontics) who were specialized in Implantology seemed to provide a better insight on implant maintenance and thereby emphasize and reinforce the same to the patients for the long term success of the dental implants.

CONCLUSION

Patient's perception/belief that dental implants are just like the natural teeth makes them complacent and treat their dental implants in the same way as the natural teeth. Many do not follow the thorough cleaning procedures imperative for the implant longevity. A clinician must ensure that patients understand the different demands of an implant over natural teeth and follow the rigorous home care maintenance for the long term success of the implants.

REFERENCES

- [1] Meadows L, Verdi A, Crabtree B. Keeping up appearances: using qualitative research to enhance knowledge of dental practice. *J Dent Educ.* 2003;67:981-90.
- [2] Tepper G, Haas R, Mailath G, Teller C, Zechner W, Watzak G, et al. Representative marketing-oriented study on implants in the Austrian population. I. Level of information, sources of information and need for patient information. *Clin Oral Implants Res.* 2003;14:621-33.
- [3] Grey E, Harcourt D, O'Sullivan D, Buchanan H, Kilpatrick N. A qualitative study of patients' motivations and expectations for dental implants. *Br Dent J.* 2013;214:E1-E1.
- [4] Aggarwal O, Bhasin K, Sharma A, Chhabra P, Aggarwal K, Rajoura O. A new instrument (scale) for measuring the socioeconomic status of a family: preliminary study. *Indian J Community Med.* 2005;30:111-14.
- [5] Rustemeyer J, Bremerich A. Patients' knowledge and expectations regarding dental implants: assessment by questionnaire. *Int J Oral Maxillofac Surg.* 2007;36:814-17.
- [6] Kaptein M, Hoogstraten J, de Putter C, de Lange G, Blijdorp P. Dental implants in the atrophic maxilla: measurements of patients' satisfaction and treatment experience. *Clin Oral Implants Res.* 1998;9:321-26.
- [7] Zimmer C, Zimmer W, Williams J, Liesener J. Public awareness and acceptance of dental implants. *Int J Oral Maxillofac Implants.* 1992;7:228-32.
- [8] Allen P, McMillan A, Walshaw D. Prosthetic dentistry: Patient expectations of oral implant-retained prostheses in a UK dental hospital. *Br Dent J.* 1999;186:80-84.
- [9] Pjetursson B, Karoussis I, Burgin W, Bragger U, Lang N. Patient's satisfaction following implant therapy. A 10-year prospective cohort study. *Clin Oral Implants Res.* 2005;16:185-93.
- [10] Furuyama C, Takaba M, Inukai M, Mulligan R, Igarashi Y, Baba K. Oral health-related quality of life in patients treated by implant-supported fixed dentures and removable partial dentures. *Clin Oral Implants Res.* 2012;23:958-62.

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