

Public awareness, knowledge, attitude and acceptance of dental implants as a treatment modality among patients visiting SDM College of Dental Sciences and Hospital, Dharwad

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Abstract:

Background: The use of dental implants as a prosthetic treatment modality for partially edentulous or completely edentulous patients is increased more commonly ever since the concept of osseointegration has been accepted. **Objective:** The objective of this study is to assess the awareness, knowledge, attitude, and acceptance of dental implants as a treatment modality among patients visiting SDM Dental College, Dharwad. **Materials and Methods:** A cross-sectional survey was conducted among 500 patients visiting SDM College of Dental Sciences and Hospital (SDMCDSH), Dharwad, using a self-explanatory questionnaire. **Results:** A total of 500 individuals participated in the survey. The results of this survey indicate that 93.4% of the patients knew about dental implants, and for majority of them, the major source of information was through their dentist followed by relatives and friends and electronic media. About 60.4% patients disapproved the removable prosthesis as an option for the replacement of missing teeth. 77.2% patients expressed that they could not afford for the dental implant treatment. The major deterioration for this treatment was related to the cost in 80.4% patients, surgical procedure in 11.6% patients, and a long treatment time in 5.6% patients. While 60.4% patients felt that dental implants being expensive, is the treatment option only for the rich. **Conclusion:** The results of this survey showed that majority of the patients visiting SDMCDSH, Dharwad, were aware about dental implants as a treatment modality for the replacement of missing teeth. Although the attitude was positive and they did accept dental implants as a treatment option, the treatment cost mainly was the major reason to take a back step.

Key words:

Awareness, dental implants, missing teeth replacement, patient-perceived cost, survey

INTRODUCTION

The use of dental implants for the replacement of missing teeth has been increased by leaps and bounds ever since the concept of osseointegration has been identified and accepted.^[1] Recent publicity about the benefits of implant dentistry has generated considerable interest among dental professionals and the public.^[2] The literature on dental implants suggests that majority of patients treated with implant-supported prosthesis have reported improvement in their quality of life and self-confidence, along with psychological benefits.^[3] Moreover, the awareness of good general health, dental health, and nutrition has led to longevity of life of humans. Thus, there lies a need to replace the missing teeth with a focus on function as well as esthetics. Although the missing teeth can be replaced by removable and fixed prosthesis, there are a few disadvantages

with both.^[4] Furthermore, the rate of acceptance of removable prosthesis is minimal in both the young as well as the older individuals, and fixed prosthesis requires the sacrifice of the adjacent teeth to be replaced.^[5] Most of the studies on the awareness of dental implants in various parts of

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India and other countries suggest the use of dental implants in the rehabilitation of partially edentulous and completely edentulous patients in metropolitan cities and among the upper-middle class, rich, and educated people.^[5,6] Thus, the need of the hour is to assess the level of awareness, knowledge, attitude, and acceptance of dental implants as a treatment option for missing teeth even in developing cities. This survey study is an attempt to evaluate the same in patients visiting SDM College of Dental Sciences and Hospital (SDMCDSH), Dharwad, and provide dental education for developing positive attitude among the population.

MATERIALS AND METHODS

A cross-sectional survey was conducted among the patients visiting the Outpatient Department of SDMCDSH, Dharwad, with a chief complaint of missing teeth and replacement of the same. The survey was conducted over a period of 6 months (January 2016–July 2016). A random sampling method with convenient sample was taken. Five hundred participants were enrolled in this survey – all above 14 years of age with at least one missing tooth (excluding third molars). The patients included in this study were all from a middle-class background, well-qualified graduates with almost same socioeconomic status, working in private sectors with a monthly income of around Rs. 12,000/- and an annual income of Rs. 145,000/-. The information was collected by a self-explanatory questionnaire based on previous studies.^[3,5-8] The nature and purpose of the survey was explained to the participants, and a written consent was obtained. This protocol was approved by the Institutional Review Board of SDMCDSH, Dharwad, India. The questionnaires were handed to the patients during their regular dental visit to the hospital with the content in English or explained in local language to those needing assistance. The results were evaluated to assess the public awareness, knowledge, attitude, and acceptance of dental implants as a treatment modality among patients visiting SDMCDSH, Dharwad. Descriptive statistics were generated.

RESULTS

The present survey gives information about patient's awareness, knowledge, attitude, and acceptance of dental implants as a treatment modality for the replacement of missing teeth in patients visiting the Outpatient Department of SDMCDSH, Dharwad. A total of 500 individuals with 238 (52.4%) females and 262 (47.6%) males, between the age groups of 15–70 years, participated in the study. Table 1 summarizes the demographic data of the participating patients. Table 2 summarizes Percentage-wise distribution of study participants based on their responses to the questions, Table 3 depicts the Association between gender and responses to various questions and Table 4 shows the Association between age and responses to various questions.

Replacement of missing teeth

About 84.4% patients felt the necessity to replace the missing tooth, while 15.6% patients felt that it was not necessary to do so. Thus, majority of the participants in the surveyed population felt that it was necessary to replace the missing teeth.

Table 1: Demographic data of the participating patients, n (%)

Demographic data (n=500)	Number
Gender, n (%)	
Male	262 (47.6)
Female	238 (52.4)
Age groups, n (%)	
15-25	125 (25)
26-55	270 (54)
>56 years	105 (21)
Occupation, n (%)	
Student	23 (3.18)
Unemployed	20 (2.76)
Housewife	36 (4.97)
Professional	351 (70.2)
Business	70 (9.68)
Education, n (%)	
Uneducated	22 (3.04)
Primary	91 (12.58)
Secondary	207 (41.4)
Graduate	166 (22.95)
Postgraduate	14 (1.93)

n – Total number participants

Table 2: Percentage-wise distribution of study participants based on their responses to the questions

	a	b	c	d	e
1	84.4	15.6			
2	29.6	60.4	10.0		
3	93.4	5.8	0.6	0.2	
4	13.8	41.0	39.6	5.4	0.2
5	47.6	52.4			
6	80.4	2.4	11.6	5.6	
7	65.2	20.6	8.0	6.2	
8	84.2	10.6	1.8	3.4	
9	1.4	10.6	42.0	46.0	
10	51.4	43.4	5.2		
11	39.6	60.4			
12	22.8	77.2			
13	60.0	9.0	12.0	19.0	
14	37.6	62.4			

Table 3: Association between gender and responses to various questions

Questions	Gender	a (%)	b (%)	c (%)	d (%)	χ^2	P
Q2	Female	17.6	31.6	3.8		7.052	0.029
	Male	12.0	28.8	6.2			
Q3	Female	50.8	2.2	0.0	0.0	7.516	0.05
	Male	42.6	3.6	0.6	0.2		
Q6	Female	45.0	0.8	5.0	2.2	7.681	0.05
	Male	35.4	1.6	6.6	3.4		
Q12	Female	9.0	44.0			10.846	0.001
	Male	13.8	33.2				
Q13	Female	30.8	6.4	7.0	8.8	8.649	0.03
	Male	29.2	2.6	5.0	10.2		
Q14	Female	30.2	22.8			90.268	>0.0001
	Male	7.4	39.6				

Statistical significance at $P < 0.05$

Options to replace the missing teeth

Nearly 60.4% patients opted the replacement of missing teeth with a fixed bridge. The rest 29.6% patients did opt for removable prosthesis, and the participants who opted for the same were in the age group between 46 and 65 years.

Table 4: Association between age and responses to various questions

Questions	Age Groups	a (%)	b (%)	c (%)	d (%)	e (%)	χ^2	P
Q1	15-25 years old	12.0	0.2				126.16	0.001
	26-35 years old	24.4	0.6					
	36-45 years old	25.0	2.2					
	46-55 years old	16.4	4.2					
	Above 56 years old	6.6	8.4					
Q2	15-25 years old	0.8	11.4	0			179.29	0.0001
	26-35 years old	2.8	22.0	0.2				
	36-45 years old	7.8	18.2	1.2				
	46-55 years old	10.4	6.0	4.2				
	Above 56 years old	7.8	2.8	4.4				
Q3	15-25 years old	8.6	3.0	0.4	0.2		68.131	0.0001
	26-35 years old	23.0	1.8	0.2	0			
	36-45 years old	26.8	0.4	0	0			
	46-55 years old	20.4	0.2	0	0			
	Above 56 years old	14.6	0.4	0	0			
Q4	15-25 years old	4.4	5.2	2.6			78.49	0.0001
	26-35 years old	4.8	11.0	8.6	0.4	0.2%		
	36-45 years old	3.0	12.6	10.6	1.0			
	46-55 years old	0.8	7.8	10.4	1.6			
	Above 56 years old	0.8	4.4	7.4	2.4			
Q5	15-25 years old	9.4	2.8				52.35	0.0001
	26-35 years old	14.6	10.4					
	36-45 years old	13.0	14.2					
	46-55 years old	7.2	13.4					
	Above 56 years old	3.4	11.6					
Q6	15-25 years old	6.4	0.6	3.8	1.4		57.56	0.0001
	26-35 years old	18.2	1.4	3.6	1.8			
	36-45 years old	23.6	0.2	2.4	1.0			
	46-55 years old	19.0		1.2	0.4			
	Above 56 years old	13.2	0.2	0.6	1.0			
Q7	15-25 years old	9.8	2.2	0.2			62.45	0.0001
	26-35 years old	18.6	3.6	2.4	0.4			
	36-45 years old	17.8	5.8	2.8	0.8			
	46-55 years old	11.4	5.6	2.0	1.6			
	Above 56 years old	7.6	3.4	0.6	3.4			
Q9	15-25 years old	0.2	1.2	2.6	8.2		35.54	0.0001
	26-35 years old	0.2	1.6	9.6	13.6			
	36-45 years old	0.2	2.8	12.6	11.6			
	46-55 years old	0.6	1.8	10.8	7.4			
	Above 56 years old	0.2	3.2	6.4	5.2			
Q11	15-25 years old	7.8	4.4				30.96	0.0001
	26-35 years old	12.0	13.0					
	36-45 years old	9.8	17.4					
	46-55 years old	6.6	14.0					
	Above 56 years old	3.4	11.6					
Q12	15-25 years old	7.2	5.0				94.35	0.0001
	26-35 years old	9.4	15.6					
	36-45 years old	4.0	23.2					
	46-55 years old	1.6	19.0					
	Above 56 years old	0.6	14.4					
Q13	15-25 years old	9.2	0.2	1.0	1.8		24.97	0.01
	26-35 years old	16.2	1.6	3.0	4.2			
	36-45 years old	16.8	3.2	3.4	3.8			
	46-55 years old	10.8	2.2	3.2	4.4			
	Above 56 years old	7.0	1.8	1.4	4.8			

Statistical significance at $P < 0.05$ **Source of information about dental implants**

For majority of the patients (93.4%), it was their dentist from whom they got the information regarding dental implants, while the rest others got the information through relatives and friends (5.8%) and very negligible through the electronic media (0.6%) and mass media (0.2%).

Almost 41% patients were well informed, while 39.6% of them were moderately well informed about dental implants. Only

13.8% patients were very well informed and when asked about their willingness to undergo dental implant treatment if needed, 47.6% patients were willing, while 52.4% patients were not. The reason not to opt for the dental implant treatment was an expensive treatment cost expressed in 80.4% patients, while 60% patients felt that only the rich could afford for dental implant treatment. About 11.6% patients were hesitating due to the surgery involved in the treatment procedure, while 5.6% patients were not convinced due to the prolonged treatment duration.

Biggest advantage of dental implant supported dentures/bridges

About 84.2% patients were convinced with the fixed nature of dental implants, while 10.6% patients found the function and esthetics to be the biggest advantage.

Lifespan of dental implant treatment

Nearly 42% patients assumed that dental implants would last up to 20 years, while 46% patients expected it to last for a lifetime.

Need for special care and hygiene

About 43.4% patients felt that dental implants need more care than natural teeth, while 51.4% patients felt that dental implants need less care than natural teeth.

Effects of Dental Implants in comparison with common prosthesis treatment

Almost 60% patients felt that dental implant treatment was better than fixed prosthesis. Regarding the phobia expressed for the dental implant treatment, 62.4% patients were not afraid of the treatment, while 37% patients did express phobia.

DISCUSSION

The use of dental implants for the replacement of missing teeth has been increased by leaps and bounds ever since the concept of osseointegration has been identified and accepted.^[1] The use of dental implants for restorations has revolutionized patient care and has given solutions for those clinical conditions, wherein conventional prosthodontics has failed to give satisfactory outcomes.^[2] With the ever-aging population and with the increase in the lifespan of individuals, it is but natural that longer an individual lives, more are the chances of him/her losing their teeth. Moreover, due to these, the replacement of missing teeth becomes more important so as to restore the individual to form, function, and esthetics for the life.^[9] In the early years of implantology, dental implants were targeted at replacing the completely edentulous foundations. However, with the increased awareness of dental implants pertaining to its function and esthetics, more and more patients are opting for dental implant treatment even for the replacement of a single missing tooth. However, most of the studies^[3-7] on the awareness of dental implants in various parts of India and other countries suggest the use of dental implants in the rehabilitation of partially edentulous and completely edentulous patients in metropolitan cities and among the upper-middle class, rich, and educated people. The need of the hour is to assess the level of awareness, knowledge, attitude, and acceptance of dental implants as a treatment option for missing teeth even in developing cities. Thus, a survey study was conducted to evaluate the same in patients visiting SDMCDSH, Dharwad.

In the present study, 93.4% patients had heard about dental implants, majority of them between the age group of 26–45 years. Only 29.6% patients did opt for removable prosthesis, and the participants who opted for the same were in the age group between 46 and 65 years. This could be attributed to increased interest and awareness of advancement in dental technology among the younger generation.^[10] Thus, the age and level of education have influenced the findings of this research.

Regarding the source of information, for most of the patients (93.4%), it was their dentist from whom they received the awareness about dental implants, followed by their relatives and friends. This is in agreement with Pommer *et al.*,^[11] Chowdhary *et al.*,^[10] Satpathy *et al.*,^[5] Mukatash *et al.*,^[12] and Ravi Kumar *et al.*^[13] which stated that dentists are the main source of information. A study^[14,15] conducted in the USA reported that media was the main source of information, and thus, in accordance with the results of this survey apart from dentists, the articles about dental implants should be highlighted in magazines and newspapers as well, so as to spread the awareness.

In the present study, 13.8% patients were very well informed, 41% were relatively well informed, while 39.6% patients were moderately well informed about dental implants. About 60% patients felt that dental implant treatment was better than fixed prosthesis. However, 52.4% patients were not willing to undergo dental implant treatment. About 80.4% patients stated that dental implants were costly and 60% patients expressed that only the rich could afford for it. This is in accordance to Zimmer *et al.*^[16] and Akagawa *et al.*^[17] who suggested that high cost of dental implants was the most serious hindrance factor for obtaining dental implant treatment. Thus, having dental insurance in Dharwad would definitely raise the willingness of patients for receiving the dental implant treatment. Pertaining to the dental implant care and hygiene, 54.4% patients felt that implants are cleaned like natural teeth. Thus, dental implant hygiene and maintenance also needs to be emphasized.

CONCLUSION

Within the limitations of this survey study, it can be concluded that among the patients visiting SDMCDSH, Dharwad, 93.4% patients have heard about dental implants. Although dentists were the main source of information, spreading awareness through mass media needs to be emphasized. Although patients did show a positive attitude toward dental implant treatment, high cost was the major limitation, wherein patients were not willing to undergo this treatment. Patients expressed that dental implant treatment was expensive and could be afforded only by the rich. Thus, efforts should be taken to reduce the cost of dental implants at an affordable rate or provide dental insurance in Dharwad for patients seeking this treatment.

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Conflicts of interest

There are no conflicts of interest.

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QUESTIONNAIRE

Name:

Age:

Gender:

Address:

Occupation

1. Do you feel it is necessary to replace the missing teeth?
 - a. Yes
 - b. No
2. What do you think are the options to replace the missing teeth?
 - a. Removable Dentures
 - b. Fixed dentures/bridges
 - c. None
3. From where have you heard about dental implants?
 - a. Dentist
 - b. Relatives and Friends
 - c. Internet
 - d. T. V/Radio
 - e. Newspaper/magazine/articles/journals.
4. How well informed do you feel about dental implants?
 - a. Very well
 - b. Well
 - c. Moderately well
 - d. Poorly
 - e. Not at all
5. Are you willing to undergo dental implant treatment if needed?
 - a. Yes
 - b. No
6. What is the reason for you not to opt for dental implants?
 - a. High Cost
 - b. Lack of knowledge
 - c. Surgery
 - d. Long treatment time
7. Where in the mouth do you think dental implant is placed?
 - a. Jaws
 - b. Gums
 - c. On the adjacent teeth
 - d. Don't know
8. What do you think is the biggest advantage of dental implant supported dentures/bridges?
 - a. Fixed replacement is better
 - b. Comfortable and Good in function
 - c. Looks better
 - d. Improved quality of life.
9. How long do you think a dental implant lasts for?
 - a. Up to 5 years
 - b. Up to 10 years
 - c. Up to 20 years
 - d. Lifetime
10. Do you feel dental implant needs special care and hygiene?
 - a. No – Cleaned like natural teeth
 - b. Yes – More care than natural teeth
 - c. No – Need less care than natural teeth
11. Who in your opinion should opt for dental implant?
 - a. Everyone
 - b. Only Rich people as implants are expensive
12. How do you rate the treatment charges which are involved in this procedure?
 - a. Affordable
 - b. Not affordable
13. How are the effects of implant treatment in comparison with common prosthesis treatment?
 - a. Better than FPD
 - b. Similar
 - c. Less similar
 - d. No idea
14. Are you afraid of dental implant treatment procedure?
 - a. Yes
 - b. No