

DENTAL IMPLANTS AS AN OPTION FOR MISSING TOOTH/TEETH REPLACEMENT: A STUDY ON PATIENT AWARENESS AND SOURCES OF INFORMATION

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ABSTRACT

Objectives: This study was designed with an aim to assess the level of awareness of patients who reported to dental outpatient department, regarding dental implants as a treatment modality for replacement of missing teeth, and to determine their sources of information regarding implants.

Methods: This was a questionnaire-based study to assess the awareness about dental implants and the related sources of information in 350 patients who reported to Department of Dentistry, Shyam Shah Medical College Rewa, Madhya Pradesh from 1st October 2022 to 31st December 2022.

Results: Only 36.86% (n=129) of participants had heard of dental implants. Among these patients (N=129), only 30.23 % (n=39) received information about dental implants from dentists. Only 4 (3.10%) patients had themselves undergone treatment with dental implants. Awareness regarding implant composition was poor with only 6.98% (n=9) participants being aware that implants are made of titanium. Fear of surgery (33.33%) and high treatment cost (30.23%) were the most common limiting factors that governed the decision of patients regarding undergoing treatment with dental implants.

Conclusion: The findings of the study indicate a low level of awareness about dental implants as a treatment option for replacing missing teeth. A very less number of participants received information from reliable sources. It is important to create awareness in general population regarding feasibility of implants for prosthetic rehabilitation and to make implant treatment easily accessible and affordable.

Keywords: Dental implants, Patient knowledge, Awareness, Missing teeth, Source of information.

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INTRODUCTION

Dental implant resembles the radicular part of the root and is surgically inserted into the jawbone to support a single tooth replacement, fixed partial, complete denture or maxillofacial prosthesis [1]. It has become preferred treatment modality for as a prosthetic rehabilitation and is known for excellent long-term results [2,3]. An implant-retained prosthesis provides greater stability, improved biting and chewing forces, and higher patient satisfaction [4]. However, the general public is often unaware or lesser informed regarding the treatment procedure, benefits, the costs involved, and the post-treatment care [5]. The study aimed at assessing the level of knowledge and source of information regarding the use of dental implants as a treatment option for missing tooth/teeth replacement.

METHODS

A cross-sectional questionnaire-based study was conducted with the aim to evaluate the awareness in population of Rewa district (M.P) about dental implants. The study was approved by the institutional scientific review board and informed consent was obtained from the participants.

A total of 350 patients attending the outpatient department of Shyam Shah Medical College, Rewa, India, during 1st October 2022 to 31st December 2022, were included in the study. Random sampling method was used to select the participants for this study. The inclusion criteria were patients with at least a single missing tooth or those with multiple missing teeth who consented to be a part of the study. Exclusion criterion were patients with missing teeth in the form of extracted third molars, physically challenged or intellectually disabled patients, patients involved in Dental/Medical professions, and those

Table 1: Distribution of participants based on demographic characteristics

Demographic characteristics	n	%
Gender (N=350)		
Male	220	62.86
Female	130	37.14
Age		
18-25	17	4.86
26-35	64	18.29
36-55	92	26.29
56-65	138	39.43
>65 years	39	11.14
Education (N=350)		
Illiterate	59	16.85
Up to Primary School	74	21.14
Up to Senior Secondary School	137	39.14
Graduate level	51	14.57
Post-graduate or above	29	8.28

who were not willing to participate or failed to participate in the study. A pre-validated structured questionnaire was administered to the participants by face-to-face interview. The questionnaire was prepared in English language and translated to Hindi language to facilitate a better understanding of the questions among participants. Section 1 procured sociodemographic information of the participant including age, gender, and education. Section 2 gathered information on 10 questions aimed at assessing the level of awareness regarding options of replacement of missing tooth/teeth and about dental implants as a treatment modality.

RESULTS

Out of a total of 350 participants, majority (62.86%) were males and the most common age group was 54–65 years (39.43%) followed by 35–54-year age group (26.29%) (Table 1). The awareness about removable partial dentures and fixed partial dentures in the study population was found to be good with 82% and 71.14% participants, respectively, being aware (Table 2). The awareness about dental implants was low and only 36.86% participants had heard of implants. However, majority of the patients (64.86%) had keen interest in learning about the same (Table 3). Out of a total of 129 participants who had heard of dental implants only 30.23% (n=39) participants obtained information about dental implants from Dentists. Only 4 (3.10%) participants had themselves got dental implant treatment done and 20 (15.50%) participants reported that their immediate contacts

Table 2: Awareness of the participants about treatment options for replacement of missing teeth

Type of prosthesis	Number of participants (n)	Percentage
Removable prosthesis	287	82
Fixed prosthesis	249	71.14

Table 3: Awareness of the participants regarding dental implants as an option of the replacement of missing teeth

Q. No.	Question	Response	n	Percentage
1	Have you heard of dental implant as an option of the replacement of missing teeth?	Yes	129	36.86%
		No	221	63.14%
2	Will you like to obtain information on dental implants?	Definitely	227	64.86%
		Likely	52	14.86%
		Maybe	30	8.57%
		No	41	11.71%

(family/friends) have undergone treatment with dental implants. The awareness about composition of dental implants was very low with only 6.98% participants (n=9) being aware that dental implants are made of titanium. The fact that dental implants were anchored to jaw bones was known to only 40.31% participants. Majority of participants (60.46%) believed that dental implants require special maintenance in comparison to natural teeth. Fear of surgery was cited as the limiting factor while deciding upon getting missing teeth replaced by dental implants by majority (33.33%) of the participants. Cost of the treatment and long treatment time were also reasons for dilemma as stated by 30.23% and 24.03% of participants, respectively (Table 4).

DISCUSSION

Various treatment options are available for the replacement of missing teeth and the most common choice being fixed partial denture as it is considered to be cost effective and affordable and imparts increased masticatory capacity along with ease in communication and speech [6,7]. A non-removable replacement for missing teeth (i.e., FPD or implant supported) provides patients with an enhanced sense of confidence, security, and social well-being [6].

In this study, the awareness regarding removable and fixed prosthesis for missing tooth/teeth replacement was 82% and 71.14%, respectively, which was better in comparison to a study by Jayasinghe RM *et al.*, who reported 77.9% and 25.2%, respectively [8].

The awareness in general population about dental implants was 36.86% in this study which was better than the study by Chowdhary R *et al.* [9], Jha *et al.* [7], and Jayasinghe RM *et al.* [8], who reported that only 23.24%, 25%, and 32.9% of the population, respectively, had heard of dental implants as a treatment option for replacing missing teeth. However, the awareness was low in comparison to study by Alajlan A *et al.* [10], ThillaiGovindan R *et al.* [6], and Arora K Jr *et al.* [11], where

Table 4: Distribution of patients based on the answers pertaining to awareness regarding dental implants (N=129)

S. No.	Questions pertaining to patient's awareness regarding dental implants	Patient responses		
		N=129	n	%
1	Where did you obtain information about dental implants?	Dentist	39	30.23
		Family Physician	8	6.20
		Friends/family	28	21.70
		Internet	30	23.26
		Television/newspaper	24	18.60
2	Do you know anybody who has received implant treatment	Family member	11	8.53
		Acquaintance	9	6.98
		Myself	4	3.10
		Does not know anyone	105	81.39
4	What material are dental implants made from?	Stainless Steel	35	27.13
		Titanium	9	6.98
		Porcelain	25	19.38
		Don't know	60	46.51
5	Where do you think implants are anchored?	Gums	25	19.38
		Jawbone	52	40.31
		Teeth	13	10.08
		Don't know	24	18.60
6	How long do you think will an implant last?	<5 years	31	24.03
		5–10 years	26	20.15
		10–20 years	25	19.38
		Lifetime	20	15.50
		Don't Know	39	30.23
7	Do you think implants need special care and oral hygiene maintenance than natural teeth?	Yes	78	60.46
		Lesser	23	17.83
		Same	28	21.70
8	Most important limiting factor when deciding to have a dental implant placed?	Fear of surgery	43	33.33
		Cost of treatment	39	30.23
		Fear of foreign body Insertion in body	16	12.40
		Long treatment time	31	24.03

91.5%, 77.5%, and 75% population, respectively, were aware about dental implants.

In our study, 64.86% participants were definitely interested in obtaining more information on dental implants and 14.86% were likely to obtain the same. This was better in comparison to study by Meer Rownaq Ali *et al.*, where 54.60% of participants were definitely interested and 12.90% were likely interested in obtaining information [12].

Dentists were the main source of obtaining information in this study and 30.23% (n=39) participants obtained information from them. This was in accordance with the studies by Esfahani and Moosaali [13], Kohli S *et al.* [14], and Arora K Jr *et al.* [11] who reported 40.7%, 53.6%, and 34.5% of participants in their studies obtained information from dentists, respectively. The second major source of information in this study was internet as 23.26% of participants obtained information from internet sources. This was in accordance with the study by Meer Rownaq Ali AB *et al.*, where dental professionals (41.90%) followed by the internet (15%) were the major sources of obtaining information [12]. However, in studies by Alajlan A *et al.* [10], and Suwal P *et al.* [15], friends were the main sources of obtaining information in 45.5% and 30.2% of participants respectively. Similarly, in a study by Mayya A *et al.*, 69.8% of the respondents received information regarding prosthetic options from relatives and friends [1].

Even in those participants who had heard of dental implants, the awareness regarding the basics of implants was found to be low. The implant composition was correctly known to only 6.98% participants. Deeb G *et al.* in their study divided participants into groups; the first consisted of randomly selected new patients with no plans to receive dental implants and the second consisted of patients presenting for implant screening. Implant composition was correctly known to 16% and 70% of participants, respectively, in these groups [5]. Less than half of the participants (40.31%) were aware that dental implants are anchored in jaw bone which was less than those by Gharpure AS *et al.* [16], and Meer Rownaq Ali AB *et al.* [12], who reported 65.02% and 55.30%, respectively, in their study. Fear of surgery (33.33%) followed by high treatment cost (30.23%) was cited as the major limiting factors for patients while deciding on choosing dental implants. Other studies in literature have also reported high treatment cost to be a major limiting factor that desists the patients regarding treatment with dental implants [1,4,11,14]. However, the results in terms of cost could have been biased because center for this study was a government tertiary care hospital where a significant section of population seeks treatment because of affordability and government health schemes. Another limitation of the study was its cross-sectional nature and the fact that the participants of the study were the people reporting to dental OPD for seeking treatment which could have influenced their knowledge and answers. Long-duration studies with larger sample size comprising general population need to be conducted for generalizing results.

It was observed that awareness regarding dental implants was inadequate in this study; hence, it is important to educate the general population regarding implants. It is imperative that dissemination of information should come from a trusted source, which should be the dental professionals who play a pivotal role in educating as well as reinforcing information [5,17].

CONCLUSION

The awareness regarding dental implants was found to be low in this study. It is vital to raise the awareness about dental implants in general population. Most of the patients found dental implants treatment to be expensive and unaffordable. Efforts should be aimed to make such treatment accessible and economic for general population through its inclusion in government health-care schemes.

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AUTHORS' CONTRIBUTIONS

Divashree Sharma and Geeta Mishra Tripathi were involved in conceptualization, methodology, data collection, data interpretation, manuscript drafting, and editing. Ambrish Mishra and Rajnarayan Tiwari were involved in conceptualization, methodology, statistical analysis, data interpretation, manuscript drafting, editing, and review.

CONFLICTS OF INTEREST

All authors declare no conflicts of interest in publishing this article.

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REFERENCES

1. Mayya A, D'Souza J, George AM, Shenoy K, Jodalli P, Mayya SS. Knowledge and awareness of dental implants as a treatment choice in adult population in South India: A hospital-based study. *Indian J Dent Res* 2018;29:263-7. doi: 10.4103/ijdr.IJDR_92_17, PMID 29900906
2. Adell R, Lekholm U, Rockler B, Brånemark PI. A 15-year study of osseo-integrated implants in the treatment of the edentulous jaw. *Int J Oral Surg* 1981;10:387-416. doi: 10.1016/s0300-9785(81)80077-4, PMID 6809663
3. Narby B, Kronström M, Söderfeldt B, Palmqvist S. Changes in attitudes towards desire for implant treatment: A longitudinal study of a middle age and older Swedish population. *Int J Prosthodont* 2008;21:481-5. PMID 19149061
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;14:115-8. doi: 10.5005/jp-journals-10024-1282, PMID 23579906
5. Deeb G, Wheeler B, Jones M, Carrico C, Laskin D, Deeb JG. Public and patient knowledge about dental implants. *J Oral Maxillofac Surg* 2017;75:1387-91. doi: 10.1016/j.joms.2017.03.024, PMID 28413151
6. Thillaigovindan R, Eswaran MA, Kesavan R, Ashi H, Raj AT, Patil S. Awareness and attitude toward the replacement of missing teeth among patients at a Dental Institute: A cross-sectional study. *J Contemp Dent Pract* 2022;23:95-9. doi: 10.5005/jp-journals-10024-3293, PMID 35656665
7. Jha A, Aher V, Lath P, Khangembam M, Nishant, Pani P, *et al.* Knowledge and awareness of dental implants as a treatment choice in the adult population in North India: A hospital-based study. *Natl J Maxillofac Surg* 2021;12:244-9. doi: 10.4103/njms.NJMS_38_20, PMID 34483584
8. Jayasinghe RM, Perera J, Jayasinghe V, Thilakumara IP, Rasnayaka S, Shiraz MH, *et al.* Awareness, attitudes, and demand on replacement of missing teeth among a group of partially dentate patients attending a University Dental Hospital. *BMC Res Notes* 2017;10:334. doi: 10.1186/s13104-017-2655-0, PMID 28750652
9. Chowdhary R, Mankani N, Chandraker NK. Awareness of dental implants as a treatment choice in urban Indian populations. *Int J Oral Maxillofac Implants* 2010;25:305-8. PMID 20369088
10. 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;2019:5792072. doi: 10.1155/2019/5792072, PMID 31467547
11. Arora K Jr, Kaur N 2nd, Kaur G 3rd, Garg U 4th. Knowledge, awareness, and attitude in using dental implants as an option in replacing missing teeth among dental patients: Survey-based research in a dental teaching hospital in Derabassi, Punjab. *Cureus* 2022;14:e27127. doi: 10.7759/cureus.27127, PMID 36004029
12. Meer Rownaq Ali AB, Alzaidi TA, Yaqoub Alghimlas R, Kamal Alenezi M, Albeshar Y, Abdullah Alosaimi H. Assessment of current knowledge, awareness and attitude towards dental implants as a treatment option for replacement of missing teeth in Riyadh, Saudi Arabia. *Cureus* 2023;15:e34189. doi: 10.7759/cureus.34189,

- PMID 36843825
13. Esfahani OF, Moosaali F. Awareness and knowledge of patients toward dental implants as an option in replacing missing teeth: A survey in Kerman, Iran. *J Periodont Implant Dent* 2016;8:43-8.
 14. Kohli S, Bhatia S, Kaur A, Rathakrishnan T. Patients awareness and attitude towards dental implants. *Indian J Dent* 2015;6:167-71. doi: 10.4103/0975-962X.168518, PMID 26752875
 15. Suwal P, Basnet BB, Shrestha B, Parajuli PK, Singh RK. Knowledge, attitude, and awareness regarding dental implants among patients visiting a university hospital and its teaching districts. *J Dent Implants* 2016;6:57-61. doi: 10.4103/jdi.jdi_22_16
 16. Gharpure AS, Bhangre PD, Gharpure AS. Awareness of dental implant treatment in an Indian metropolitan population. *J Dent Implant* 2016;6:62-8. doi: 10.4103/0974-6781.202156
 17. Ho K, Bahammam S, Chen CY, Hojo Y, Kim D, Kondo K, *et al.* A cross-sectional survey of patient's perception and knowledge of dental implants in Japan. *Int J Implant Dent* 2022;8:14. doi: 10.1186/s40729-022-00410-w, PMID 35368208