



Data analysis

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**\*Corresponding author**

Mahvash Fatema

**Email**

mahvash04@gmail.com

**Phone**

+91-8698778899

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## Knowledge and Level of Awareness About Dental Implants Amongst the Dental Undergraduate Students and Interns

Sneha Puri, Mahvash Fatema\*, Akhilesh Shewale, Rashmi Bele, Priyanka Ghogare

Department of Periodontics, Swargiya Dadasaheb Kalmegh Smruti Dental College and Hospital, Hingna, Nagpur, India

**Abstract**

Dental implants are becoming the focus of interest for the replacement of missing teeth among dental practitioners. For the planning of dental implants, it is important to have proper knowledge and awareness about implants as it directly or indirectly affects the treatment outcome and patient satisfaction. This study was conducted to assess the level of knowledge and awareness about dental implants amongst dental undergraduate students and interns. A web-based questionnaire survey consisting of 14 questions on dental implants was conducted among 200 participants. The participants were undergraduate dental students and interns from all over India and it was assessed by the investigator using percentage. In this study, it was found that the undergraduate students and interns are very much aware of dental implants (approx. 92%) and also the various questions regarding dental practices were answered positively. This survey had concluded that there is an acceptable level of knowledge and awareness regarding the use of dental implants as a treatment option for replacing missing teeth.



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## Introduction

There are many conditions like facial trauma, periodontal diseases, dental caries, endodontic failures and iatrogenic factors that may lead to tooth loss. Some consequences of tooth loss ultimately lead toward a negative impact on society as well as on physical well-being. There are many treatment modalities like implant-supported prosthesis, fixed or removable dentures and tooth-supported prosthesis for the replacement of missing teeth [1]. All treatment modalities have both advantages as well as disadvantages. Removable complete or partial dentures, although have been the traditional treatment of choice for missing teeth but some of their disadvantages, are difficulty in speech and mastication, loss of retention and denture instability which may cause further residual alveolar ridge resorption. In the case of a fixed partial denture (FPD), there is hypersensitivity due to the removal of an extensive amount of tooth structure, increased risk for endodontic treatment and patient's unable to maintain proper oral hygiene [2].

Nowadays dental implantology is becoming the focus of interest in the field of dentistry. Despite its excellent clinical outcomes, the basic knowledge about dental implants is still not known among dental undergraduate students. Awareness among dental students can help in the adequate supply of information regarding dental implants among the general public, which helps them in choosing better opportunities. It is important to identify whether undergraduate dental students and interns know about dental implants as a treatment option as their awareness plays an important role in the elimination of any negative treatment outcome which may be due to the lack of adequate communication [3]. Therefore, the present study aimed to assess the knowledge and level of awareness about dental implants amongst dental undergraduate students and interns.

## Methods

The present study was conducted among dental undergraduate students and interns who were studying and practicing in India between December 2020 to February 2021. At google forms a questionnaire was prepared which was available at

[https://docs.google.com/forms/d/e/1FAIpQLSc043BrNqX1rCWO6RO7ijpBqQlneFafdrIEOUXTq4DuLaWbTA/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSc043BrNqX1rCWO6RO7ijpBqQlneFafdrIEOUXTq4DuLaWbTA/viewform?usp=sf_link) and this

hyperlink was shared through WhatsApp groups as well as personally to dental undergraduate students and interns. The questionnaire was displayed by clicking on the above link and responses were sought by the undergraduate students and interns lastly, they had to submit the form by clicking on the 'submit' button at the end of the questionnaire. Personal details like name, age, sex, e-mail address and telephone number were not required and only the principal investigator had an access to the responses. Responses were sought from the students who were currently doing under graduation and internship in dentistry and submission was considered only when the 'submit' button was clicked at the end of the questionnaire. The questionnaire consists of a series of questions about implants in the clinical field (Table 1). The data were collected, tabulated and entered into Microsoft excel 2010. The descriptive evaluation of the responses was carried out and the outcomes were expressed in the form of a percentage.

## Results

In the present survey, questions and their responses are shown in Table I, it has been found that the undergraduate students and interns who participated in the study were very much aware of the materials (92.1%) from which implants are made and about 60.5% know that the maintenance of implant hygiene can be done through brushing and flossing technique. About 71.1% were aware of the limitations of implant-supported crown/bridge/denture and about 92.3% of the population were aware of the effects of a dental implant as compared with the common prosthesis treatment. Around 97.3% of students were aware of the fact that dental implants are anchored into the jaw bone. Approximately 68.4% of students and interns were aware of the various techniques which are available for taking impressions in the case of dental implants. Approximately 60.5% of students have thought that the high cost of dental implants is the main reason why patients avoid that treatment option. Around 84.2% of the population were aware of the anesthesia which is used for dental implants procedure. On a scale of 1-10, approximately 57.9% feel that the difficulty in the placement of dental implants falls under the average category if we compared it with some other dental procedures. About 41.2% of people thought that dental implants are more conservative than other procedures as it does not require any reduction of the adjacent tooth structure and about

**Table I** Responses of various questions among the participants selected from all over the Indian.

Questions	Responses					
1. Identity of participant	Undergraduate student			Intern		
	18.9% (38)			81.1% (162)		
2. What materials are dental implants made from?	Porcelain	Stainless steel	Titanium	Ceramic		
	0	7.9% (16)	92.1% (184)	0		
3. Do implants require the same brushing and flossing as natural teeth?	Yes			No		
	60.5% (121)			39.5% (79)		
4. What do you thought are the limitations of implant-supported crown/bridges/dentures?	High costs	Lack of knowledge	Need of surgery	Long treatment time		
	71.1% (142)	2.6% (5)	15.8% (32)	10.5% (21)		
5. How are the effects of implant treatments in comparison with common prosthesis treatment?	More	Similar	Less	No idea		
	86.8% (174)	10.5% (21)	0	2.7% (5.4)		
6. Where in the jaw do you thought implants are anchored?	Jaw bone	Gums	In/on neighboring tooth	Do not know		
	97.3% (195)	2.7% (5.4)	0	0		
7. Are you aware of various impression techniques available for dental implants?	Yes			No		
	68.4% (137)			31.6% (63)		
8. What do you thought is the most common cause that prevents the patient to replace the missing teeth with dental implants?	High cost	Surgery risk	Long treatment duration	Scared of unknown side effect		
	60.5% (121)	34.2% (69)	2.65% (5)	2.65% (5)		
9. Anesthesia used to do dental implants?	General anesthesia		Local anesthesia	Do not know		
	10.5% (21)		84.2% (168)	5.3% (11)		
10. On a scale of 1-10, how difficult do you feel is to place implants as compared with other dental procedures?	1: very easy		5: average	10: very difficult		
	0		57.9% (116)	42.1% (84)		
11. What do you thought is the main advantage of dental implants as compared with other tooth replacement modalities?	Aesthetics (looks nicer)	More conservative; does not require any adjacent tooth reduction	Longevity lasts longer	No additional advantage	Do not know	
	23.7% (47)	42.1% (84)	34.2% (68)	0	0	
12. What do you thought is the most important factor for implant success?	Case selection	Implant type & material	Patient compliance	Surgical technique	Experience of the operator	Do not know
	34.2% (68)	21.1% (42)	15.6% (32)	13.2% (26)	10.5% (21)	5.3% (11)
13. What do you tell your patient is the longevity of dental implants?	2-5 yrs	5-10 yrs	10-20 yrs	Lifetime	Do not know	
	0	28.9% (58)	52.6% (105)	10.5% (21)	7.9% (16)	
14. Do you thought that dental implants are an acceptable solution for missing teeth?	Yes, implants stay	No, economic feasibility will limit its usage		No, too invasive	Do not know	
	52.6% (105)	36.8% (74)		5.3% (11)	5.3% (11)	

**Note:** Data are presented as percentage (number of students) who answered the questionnaire.

34.2% thought case selection is the most important factor that decides the success rate of dental implants. Around 52.6% of students thought that 10-20 years could be the longevity of dental implants and the same percentage of students also agreed with the fact that for missing teeth, dental implants are an acceptable solution.

## Discussion

The present study aimed to evaluate the knowledge and level of awareness about dental implants among dental students in India. A questionnaire was prepared by the investigator and it was filled by the dental students and interns. In the present study, 92% of students were aware of the material (titanium) from which dental implants are made. About 60.5% of students felt that the implants required the same brushing and flossing technique as that of natural teeth. Satpathy et al. [2], in their study, reported that about 39.29% of the study population felt that dental implants required less care as compared to natural teeth, 37.49% of the study population felt that cleaning of dental implants are same as natural teeth and 23.24% thought that more care is required in case of dental implants as compared to natural teeth. One of the studies by Saxena et al. [1] reported that 50% of students knew the importance of dental implants and their cost as dental implants show significant advantages as compared to other conventional removable prostheses whereas 33% of students had no idea about the implant expenses. In this study, 71.1% of the population thought that the high cost is the limitations of implant-supported crown/bridges/dentures. In the present study, 86.8% felt that the effects of implant treatments are more as compared to a common prosthesis. In the study by Alajlan et al. [3], comparing the functional outcome of dental implants with the common prosthesis, 45% of the study population thought that dental implants are important, 35% of the population thought that it is very important, while 2% thought it is not very important and 26.5% of the respondents had no idea about that. About 97.3% of students were aware of the fact that dental implants are anchored into the jaw bone. According to the study done by Richa et al. [4], 76.1% of respondents answered that the jawbone is the place where implants are anchored whereas 8.5% answered gums and 12.8% of the population were not sure about the placement of dental implants. In the present study, 68.4% of the population were aware of the various techniques

which are available for taking impressions in the case of dental implants. Fahmida et al. [5], in their study, reported that many dental students (76%) had no idea about the different impression techniques for dental implants as compared to dental practitioners (82%). In our study, around 60.5% of undergraduate students and interns had thought that the high cost of dental implants is the main reason for not choosing it as a treatment option. Kaurani et al. [6] in their study showed that only 29% of the patients were willing to use dental implants as a treatment option, about 56% were not willing to undergo the procedure, 61.6% of patients found that dental implants are costly, 19.6% had known that it was a surgical procedure and 18.7% were not clear about the dental implant procedure. In our study, about 84.2% of the population were aware of the use of local anesthesia and 10.5% had thought that general anesthesia is used in dental implant procedures. On a scale of 1-10, approximately 57.9% have felt that the difficulty in the placement of implant falls under the average category, *i.e.*, 5 as compared with other dental procedures. According to the study by Angeles et al. [7], on evaluating the knowledge of difficulty level in performing the implant treatment among the students, they found that 48.38% of fourth-year and 23.68% of third-year students believed that the difficulty level is of average type. These results were changed with most of the third-year students (60.52%) who had thought it was difficult, although the percentage changed to 41.93% in the case of fourth-year students after receiving more information from them. About 41.2% of people thought that the main benefit of dental implants over other tooth replacement modalities is that it is more conservative as there is no requirement of any adjacent tooth reduction whereas, in the study by Sharma et al. [8], the maximum population (53.1%) have thought that the longevity of dental implant is the main advantage over other tooth replacement options, only 27.6% thought that it is more conservative as compared to tooth replacement modalities. In the present study, around 34.2% thought that case selection is the most important factor for the success of dental implants. According to Sharma et al. [8], some indications showed that the most important factor for success of implant is case selection but 31.9% of students thought 'implant type and material,' and 40.2% of students gave other answers than case selection in their study. Around 52.6% of

students thought that the durability of dental implants is 10-20 years. According to Goiato et al. [9] and Krebs et al. [10], the endurance of dental implants is up to 20 years. In the present study, 52.6% of students agreed with the fact that for missing teeth dental implants are an acceptable solution which is in accordance with the study given by Angeles et al. [7] but the only factor that would limit its use is their economic cost.

### Conclusion

The present study showed a high level of awareness among undergraduate students and interns on the possible benefits of dental implants for the replacement of missing teeth. But still, detailed education about dental implants is required to develop a positive attitude among dental students and interns as they are future dental practitioners.

### Conflict of interest

The authors declare no conflict of interest.

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