

# Knowledge and awareness of dental implants as a treatment choice in the adult population in North India: A hospital-based study

## ABSTRACT

**Background:** Implantology is an emerging field of science, although there are not many subjects who opt for this treatment modality. Replacement of missing or lost teeth with dental prostheses supported by oral implants has been accepted and received positive evaluations from patients who have undergone implant treatment. Today, implant-supported restorations can be considered the treatment of choice from the perspective of occlusal support, preservation of adjacent teeth, and avoidance of a removable partial denture. Currently, dental implants are widely accepted as a prosthetic treatment of completely or partially edentulous patients. This led to widespread acceptance and popularity of dental implants within the dental professional community.

**Aim:** The aim of this study was to evaluate knowledge, attitude, and awareness of dental implants in residents of Uttarakhand.

**Materials and Methods:** A total population of 500 subjects were randomly selected and evaluated based on filled questionnaire responses.

**Results:** A low level of knowledge was observed on analyzing the filled responses among the studied population.

**Conclusion:** General public should be made aware on dental implants as treatment modality along with the focus on increasing the cost feasibility.

**Keywords:** Attitude, awareness, dental implants, knowledge

## INTRODUCTION

Dental implants have been mainly advocated for usage among edentulous subjects owing to better stability and retention of dentures, improved functioning, and quality of life. However, nowadays, they are used as prosthesis for the replacement of missing teeth in both partially and completely edentulous individuals. Their wide acceptance among treated subjects has been reported by various authors.<sup>[1]</sup> Dental implants are preferred for prosthetic replacement due to better quality of life, self-confidence, self-assurance, and conservation of adjacent tooth.<sup>[2]</sup>

Dental implants are surgically placed within the jaw bone in order to act as a support for single tooth replacement or as fixed or partial prosthesis and maxillofacial prosthesis.<sup>[3]</sup> Their success is dependent on the integration of implants with surrounding osseous tissues. The osteointegration is

dependent on material, quantity, and quality of bone and conditions affecting the loading of implants.<sup>[4]</sup>

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According to Grogono *et al.* (1989), 88% of implant subjects demonstrated an increase in confidence following treatment with implants, while 89% were willing to undergo the procedure again. Furthermore, 98% of implant-treated subjects reported an improvement in overall oral health. Awareness levels among implant-treated subjects have been found to vary among various populations. Salonen in their study reported from Finland (1999) demonstrated only 29% awareness among the general population about implant dentistry, while Best from Australia (1993) reported 64% awareness. Al-Johany *et al.* in their study showed that 61.5% of study participants favored implant prosthesis, whereas 35.2% and 3.3% preferred fixed partial and removable dentures, respectively. Most of the study subjects preferred fixed prosthetic replacement over removable dentures due to the following reasons – (a) comfort (43.7% cases), (b) natural looking (41.3%), (c) increased masticatory capacity (35.7%), and (d) ease in communication and speech (25.4%). Major deterrent factor in choosing dental implant prosthesis in higher cost. On judging knowledge level among subjects, 78.8% preferred implant placement by specialists, while only 21.2% opted for regular dental practitioners for the procedure.<sup>[1]</sup>

A questionnaire is a method of self-administered data collection. Various limitations of this method are its tediousness, collection, and organization of data; transfer, sharing, and replication process that may be leading to multiple errors. Furthermore, web-based questionnaires carry the risk of maintaining the confidentiality of data.<sup>[5]</sup>

#### Aim and objectives of this study were

1. Evaluation of knowledge level among the studied population regarding dental implants
2. Evaluation of information sources on dental implants
3. Evaluation of acceptance of dental implants as treatment modality with comparison to other conventional techniques.

#### MATERIALS AND METHODS

This was a self-explanatory questionnaire-based survey conducted on 500 subjects visiting the Dental Outpatient Department of a Community Health Center in Uttarakhand. The questionnaire was based on five questions in English, Hindi, and Punjabi languages. It was designed to evaluate overall awareness and knowledge about dental implants. Subjects belonging to the age range of 16 years and above were selected for the study. The printed questionnaire form was distributed among study participants. Only completely filled forms were considered for completing the survey. Around 30 forms were excluded, thus, finally, filled forms

comprising of 470 complete responses were evaluated. The study design was approved by the ethical committee of Uttarakhand Department of Medical Health and Family Welfare Hospital (Reg No.IEC/513/OD/2018).

#### Survey form used in the study

1. Level of education:
  - a. Postgraduate
  - b. Undergraduate
  - c. Illiterate
2. Are you aware of dental implants as a treatment substitute for missing teeth? Yes/No
3. From where have you learned about dental implants?
  - a. Print media. For example, newspapers, magazines, etc.
  - b. Audiovisual media like television and radio
  - c. Internet usage.
  - d. Dentists
  - e. Friends and relatives.
4. Do you have willingness to choose dental implants as treatment alternatives? Yes/No
5. What are the limitations in choosing dental implants?
  - a. Higher cost
  - b. Less knowledge
  - c. Surgical intervention
  - d. Longer treatment time.

#### RESULTS

Fifty-two percent of the study group participants were male, while 48% were female subjects. About 46% of study participants belonged to the postgraduate category, while 40% belonged to the undergraduate category. While 15% were illiterate individuals [Graph 1]. About 25% of the study group had knowledge about dental implant treatment [Graph 2]. Around 57% of subjects gained knowledge about implants from family and friends, while 30% obtained information from practicing dentists. Only 15% of the study group had gathered information from the Internet or print media [Graph 3]. 57% did not want implant-based prosthetic replacement due to its higher costs, less knowledge was the second cause (28%), surgical intervention was feared by 47%, and longer treatment time was a drawback for 53% [Table 1 and Graph 4].

#### DISCUSSION

Shalya *et al.* conducted an outline survey using an 11 questionnaire-based survey on public awareness on dental implants. Most of the subjects obtained knowledge from their dentists, followed by the Internet. 52.2% of the study subjects reported high treatment cost as the biggest deterrent in

implant therapy. 45% of individuals termed implant failure as a result of poor maintenance. 25% of the study group agreed for implant-based treatment.<sup>[6]</sup>

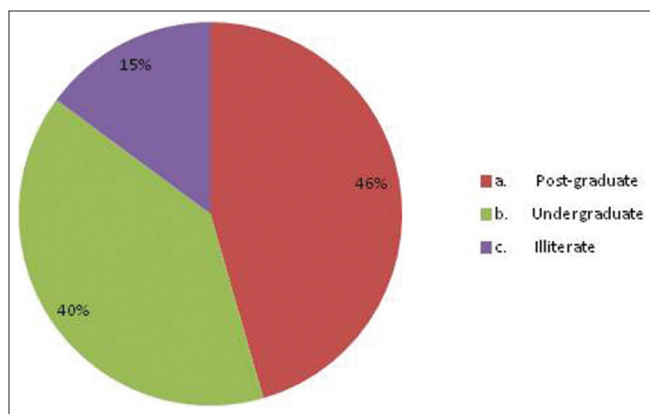
**Table 1: Various parameters studied on dental implants**

Questions asked	Responses received (%)
Level of education	
Postgraduate	46
Undergraduate	40
Illiterate	15
Are you aware of dental implants as treatment substitute for missing teeth?	
Yes	25
No	75
From where have you learned about dental implants?	
Print media. for example, newspapers, magazines, etc.	15
Audiovisual media like television and radio	5
Internet usage	8
Dentists	30
Friends and relatives	57
What are the limitations in choosing dental implants?	
Higher cost	57
Less knowledge	28
Surgical intervention	47
Longer treatment time	53

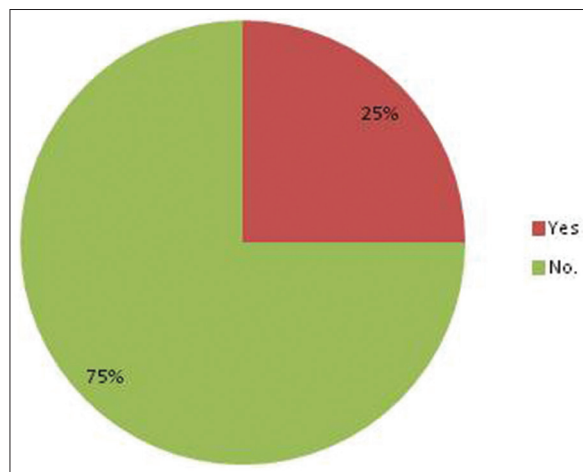
Mously *et al.*, in their analysis on 905 study participants demonstrated that 56% of subjects had low knowledge level regarding dental implants, while 44.4% possessed sound knowledge level on dental implants. Their knowledge level increased with the level of education with maximum awareness on postgraduate degree people. Most of the participants received knowledge regarding dental implants from their family and friends (43% and 42%, respectively).<sup>[7]</sup>

Sinha *et al.* conducted a study on 1000 subjects who opted dental implants as treatment choice in Daman, India and found that only 9% of respondents had implant placement, while 17% were well-informed about this treatment option. Here, also dental practitioners played a major role in providing knowledge regarding dental implant availability, followed by the Internet and media.<sup>[8]</sup>

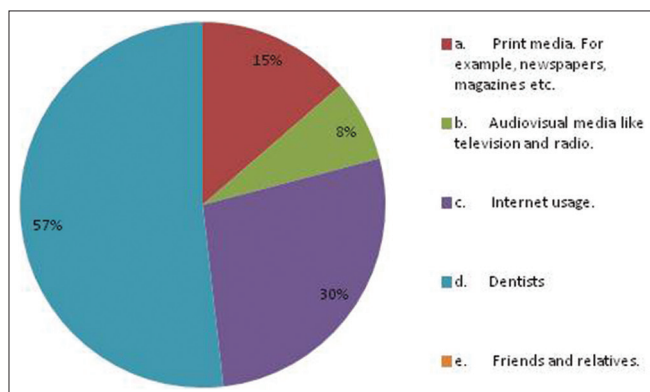
Rehman in his study on Hyderabad dental patients (*n* = 450) visiting private dental clinics observed that 62.5% of studied subjects had knowledge concerning dental implants. 87.5% of cases felt that its higher cost is the major reason for people not accepting implant treatment. 56.25% of subjects knew about their placement within the jaw, 56.25% opined their



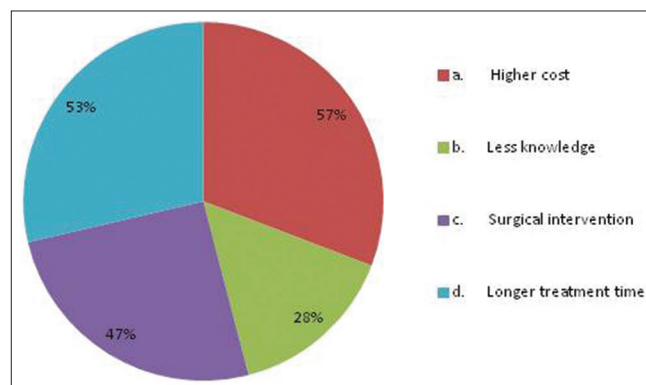
**Graph 1: Awareness based on level of education**



**Graph 2: Awareness on implant as treatment substitute**



**Graph 3: Knowledge sources on dental implants**



**Graph 4: Limitations in choosing dental implants as treatment option**

placement in gingival, while 8.75% cases considered their placement in the adjacent tooth, while 13.75% had no idea about the site of placement. 45% of the study group felt that failure of implants may be due to poor oral hygiene, 20% felt that they should be cleaned in a similar manner to natural teeth, whereas 15% were of opinion that they required less care. The main information sources were friends and relatives who constituted 35% of information providers, while dentists comprised only 30% as source of information.<sup>[9]</sup>

Sakshi *et al.* in their study on knowledge among undergraduate dental students on dental implants surmised that 99% of the study group had prior knowledge about dental implants which was mainly gathered from audio-visual resources and the Internet which is in contrast to various studies wherein dental professionals played a major role in imparting knowledge on this treatment modality. 55.68% of students reflected a maximum lifespan of 10 years, whereas 18.75% and 26.7% of subjects reported a lifespan of 10–20 years and having no knowledge about this, respectively. Here, also implant cost was a major factor in impending implants as a treatment option.<sup>[10]</sup>

Dental surgeons are oral health educators and define treatment choices which are dependent on skill and facilities available. Fixed implant prosthesis provides improved swallowing and better oral habits.<sup>[11]</sup>

According to Nazar *et al.*, 61% of study participants were aware about dental implants, while 39% showed a lack of any information on them. Sources of information in decreasing order include dental practitioners (38%), friends (33%), media (26%), and reading material (3%).<sup>[4]</sup>

Baqar *et al.* conducted a study in patients ( $n = 380$ ) to determine awareness and their attitude toward implant-supported prosthesis. Only 9.8% of the study group had awareness on dental implants. The level of awareness was found to have a statistical increase along with the level of education ( $P = 0$ ) as well as occupational levels ( $P = 0.01$ ). The main source of information on dental implants were relatives and friends (40.5%). 5.2% of subjects reported higher cost as a major deterrent toward opting dental implants as treatment modality. 73% of study participants demonstrated no knowledge on dental implants.<sup>[12]</sup>

Kinani *et al.* used a 14-question-based study on the assessment of patient's awareness, expectation, and knowledge level regarding dental implants on 380 study participants divided into medical and nonmedical groups. These investigators found 85% and 71% knowledge regarding missing tooth replacement in both groups, respectively.

Dentists were the primary source of information for both the study groups (43.3% and 34.8%, respectively). Approximately 60% to 70% of subjects feel that implant placement should be performed only by specialists. Around 52% to 77% of study participants placed the site of the implant to the jaw bone. 49.7% and 36.6% of subjects in medical and nonmedical groups, respectively, felt that implants require more care, while 13.7% and 16.7% of subjects cleaned their implant restorations in a manner similar to natural dentition.<sup>[13]</sup>

Mayya *et al.* in their questionnaire-based study involving 242 study participants belonging to Mangalore, Karnataka, India, reported that only 17.8% population had awareness on dental implants as the choice of treatment. Of these, 69.8% obtained knowledge through friends and family, while 28.1% obtained it from dentists. This study showed extremely less awareness and/or knowledge regarding dental implants in the studied group.<sup>[14]</sup>

Ajayi *et al.* in their questionnaire-based study in the Nigerian population demonstrated that major information on dental implants was provided by dental health practitioners (41.5%) which were followed by gathering information from friends who constituted 17.7% of the study group. Only 14.6% of subjects showed knowledge regarding dental implants, while 35% of study respondents had no know how on dental implants. Furthermore, individuals with higher educational levels possessed greater knowledge on implants. Furthermore, higher costs and surgical requirements were major disadvantages involving implant treatment. Subjects preferred implants for anterior teeth replacement than posterior teeth. Although, a lower awareness level was observed even in higher educational level respondents. Furthermore, implant-based prosthetic replacement was not preferred due to higher costs and need for surgical intervention.<sup>[15]</sup>

Mathuriya and Agarwal in their questionnaire-based study among dental patients belonging to Bhopal showed that just 32.5% of the study subjects had awareness regarding dental implants as a treatment modality and most of them had no knowledge regarding the procedure involved along with the advantages and disadvantages of using dental implants.<sup>[16]</sup>

Kumar and Chauhan in their assessment of knowledge and awareness regarding dental implant use among 620 Indore, India based subjects found that only 25.8% of the study cohort had knowledge of dental implants. Choice of implants as a treatment option was largely based on their esthetic advantage (70%). On the other hand, 70% also did not want implant-supported prosthetic replacement due to their high cost.<sup>[17]</sup>



Hosadurga *et al.* conducted a two-stage study in which the first phase comprised 106 subjects whose attitude, knowledge, and awareness toward dental implant treatment were assessed. The second phase was conducted after educating these subjects about implants using interactive audiovisual aids. It was seen that knowledge deficits regarding dental implants were widely distributed before providing information.<sup>[5]</sup>

Gbadebo *et al.* in their 6-month study over 220 Nigerian study participants found that 71.1% of the cohort were completely unaware regarding dental implants, while only 28.9% knew about this treatment availability. 22.6% of study participants opted for implant-based prosthesis, while 13.3% were against this treatment method. On the other hand, 61.9% were not sure about this treatment modality. 68% of the participants attributed dental professionals as the primary source of information regarding dental implants, followed by other resources such as audiovisual media, the Internet, and peer group.<sup>[18]</sup>

Pommer *et al.* have reported from the Austrian population 79% desirability for dental implant treatment.<sup>[19]</sup> Chowdhary *et al.* reported only 23.24% awareness in their study.<sup>[20]</sup> Numerous investigators have presented variations in data all around the world regarding knowledge, attitude, and overall awareness on dental implants.<sup>[21-25]</sup> Kohli *et al.*, in their awareness analysis among the Malaysian population reported that only 27% of respondents had moderate amount of information about dental implants. Dentists themselves were the main information source which was followed by audiovisual media and friend aid. On overall conclusion, 56% of study participants had both knowledge and awareness regarding dental implant treatment.<sup>[2]</sup>

## CONCLUSION

The practice of implant dentistry is presently emerging throughout the world, but there is a huge gap between the popularity of dental implants and the evidence available for the same. Clearly, there is a need for dental implant education among the Indian population to increase their knowledge and proficiency in dental implant dentistry. This can be attributed to variations in educational levels, socioeconomic status, and degree of interactions with oral health-care professionals, friends, and family. In the present study, more than half of the participants were not having information regarding dental implants. It shows that there is a need for providing more information to the patients about this treatment modality. Hence, dental education is necessary for developing positive attitude among the population regarding dental implants.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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