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Original Article

Awareness of dental implants as a treatment choice in urban Indian populations

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ABSTRACT:

Background: The application of dental implant-supported prosthesis for the use as a replacement for missing teeth has shown a rapid increase. **Aim:** The purpose of this study was to ascertain the level of awareness regarding dental implants as a choice of treatment in the urban Indian population. **Materials and methods:** This was a cross-sectional observational study based on a survey that was conducted on 300 individuals. The study questionnaire was comprised of 4 segments a) Part I contained questions related to demographics (i) age (ii) gender and (iii) marital status b) Part II comprised of questions for assessment of level of knowledge such as (i) different methods for replacement of missing teeth, (ii) information regarding dental implants, (iii) information source, (iv) complete duration of dental implants placement and (v) disadvantages related to implants; c) Part III contained items for assessment of attitudes of study participants towards dental implants and included (i) interest regarding gathering more knowledge regarding dental implant system, (ii) source of gaining information with regards to implants, (iii) role of functionality of various implants, (iv) total amount involved in placement of implants and (v) importance of a specialized dental practitioner for placement of implants and d) Part IV which was constituted by seven questions for investigating the level of awareness of study respondents on dental implants. These were (i) importance of oral hygiene for maintaining the interface between implant and tooth compared to a natural tooth, (ii) choice regarding replacement of missing teeth with an implant prosthesis, (iii) requirement of a specialist dental professional for placement of implant, (iv) effectiveness of placing implants when compared with various other modalities of replacement of teeth among others. For statistical analysis, the data were collected and entered in a master chart prepared in Microsoft Excel worksheet as mean \pm standard deviation (\pm SD) or frequency/number of cases with percentages, wherever considered appropriate. Inter-group statistical comparison was performed by using the Chi-square test. P values <0.05 were considered to have statistical significance. Entire statistical calculations were done by using the computer software program, IBM SPSS (Statistical Package for the Social Science; IBM Corp, Armonk, NY, USA) version 22.0 designed for Microsoft Windows. **Results and observations:** Of total participants, 67.2 % were females, and 32.8% were males. 43.5% of subjects were aged between 32 to 40 years. 71.0% were married. 62.2% were graduates. 81.6% of study participants knew about implants while 59.4% of participants believed in their longevity. 72.1% considered them as very expensive and 13.4% considered them as a part of prolonged treatment. 31.2% received information from their friends/relatives. 71.3% of responders desired more information. 95% believed that implants require greater hygiene when compared to natural teeth. 92.3% wanted them placed by a specialized person. 82.3% of respondents knew about the better functionality of implant-supported prosthetics. **Conclusion:** The majority of the population has awareness regarding dental implants while the major drawback was their high cost.

Keywords: Implants, awareness, cost, knowledge.

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INTRODUCTION

Dental implants are artificial root-like structures that are inserted within the alveolar bone for a variety of reasons such as providing support to complete dentures, replacement of a single tooth, and maxillofacial prosthetic replacement. ^[1] It is considered to be the best available treatment option for the replacement of single or multiple teeth. ^[2] Dental implants have nowadays become a convenient solution for complete or partial edentulous subjects for restoration of esthetics and appearance, oral health as well as functioning that includes speech as loss of teeth has significant psychological as well as functional effects over an individual's quality of life. ^[3, 4] Dental implants have been associated with improvement in stability, retention of the denture, improving functional efficacy as well as a person's quality of life. Most patients readily accept the placement of dental implants as a treatment modality. ^[5] It has been found in a study that there is an increase in self-confidence in approximately 88% of patients following implant placement and 98% of patients report an improvement in their oral health. ^[6] Thus, the clinical success along with the level of satisfaction obtained from dental implants has resulted in their popularity among dental professionals. ^[7, 8] Dental implants have been used for treating edentulous subjects and have been associated with an improvement in retentiveness of dentures, their stability, and functional efficacy that can affect the quality of life. ^[4, 5] Implant-supported prosthesis provide a greater amount of stability, improvement in biting as well as masticatory forces along with greater satisfaction of clients when compared to a conventionally placed denture. Various studies have assessed the biocompatibility of various implant systems. It has been proven that dental implants serve as satisfactory replacements for teeth and are made of materials that can be well accepted by the human body. ^[8, 9, 10, 11] Placement of dental implants assist people in enhancing their physical characteristics by turning them more confident whenever they are smiling, eliminate painful response whenever they chew and also, help in the alignment of teeth. At present, dental implants have wide acceptance as a prosthetic replacement for incomplete or partially edentulous subjects. ^[12]

In India, the use of dental implants has been limited among the common population due to a lack of knowledge along awareness. Their usage is restricted mainly due to non-affordability as well as accessibility. There are very few studies that exist for assessment of knowledge as well as awareness regarding using dental implants by patients who are willing for undergoing the replacement of missing teeth.

Nowadays patients are showing an increased interest in implant-supported prosthetic replacements. Dental professionals dealing with cases of implantology are continuously taking care of increased patient

expectations that concern the esthetics as well as functioning. Also, patients who have undergone substitution of missing or exfoliated teeth by dental implants positively acknowledge as well as give an appraisal for successful treatment using implants. ^[13] Thus, this study aimed to assess awareness of dental implants as a choice of treatment in urban Indian populations.

MATERIALS AND METHODS

This cross-sectional and observational survey-based study was conducted on 300 randomly chosen individuals. The study questionnaire was comprised of a total of 21 questions. The

The questionnaire was divided into four segments:

Part I contained three questions pertaining to demographics which included (i) age, (ii) gender, and (iii) marital status.

Part II contained a total of six questions for investigating the level of knowledge regarding dental implants. These questions were related to (i) different methods for replacement of missing teeth, (ii) information regarding dental implants, (iii) information source, (iv) complete duration concerning dental implants, and (v) disadvantages related to implants.

Part III contained five questions for assessing various attitudes of study respondents towards dental implants. These included (i) interest regarding gaining greater knowledge about dental implant system, (ii) source of gaining information regarding implants, (iii) role of a functional result of various implants, (iv) total amount which is involved in the placement of implants and (v) significance of a dental practitioner in the placement of implants.

Part IV was comprised of seven questions for investigating the awareness of study respondents regarding dental implants. This included (i) importance of oral hygiene for maintaining the interface between implant and tooth which is significantly higher than any tooth, (ii) preference regarding replacement of normal teeth with an implant prosthesis, (iii) requirement of a dentist for providing implant replacements, (iv) whether advanced dental implant system is being used by a dentist, (v) effectiveness of implant placement when compared with other modalities of tooth replacement, (vi) advantages of permanent tooth replacement option as compared to removable dentures, (vii) to which portion of the jaw is the tooth anchored.

STATISTICAL ANALYSIS

The collected data were noted in a master chart as mean \pm standard deviation (\pm SD) or frequency or number of cases and percentages, whenever appropriate. The inter-group comparison was performed by using the Chi-square test. P values lesser than 0.05 were considered statistically significant. All statistical calculations were performed by using the computer program IBM SPSS (Statistical

Package for the Social Science; IBM Corp, Armonk, NY, USA) version 22.0 designed for Microsoft Windows.

RESULTS AND OBSERVATIONS

Of 300 participants, 67.2 % were females, and 32.8 % were males. 43.5 % of subjects aged between 32 40 years. 71.0% of participants had marital status. 62.2% were graduates while the remaining were post-graduates. 81.6% of study participants knew with concern to implants while 59.4% participants believed upon the longevity of implants. 72.1% considered them as very expensive and 13.4% considered them as

a part of prolonged treatment. 31.2% received information from their friends/relatives. 71.3% of responders desired more information regarding dental implants. 95% believed that implants require greater hygiene when compared to natural teeth. 92.3% wanted them placed by a specialized person. 82.3% of respondents knew about the better functionality of implant-supported prosthetics. On comparing gender and awareness about dental implants no statistically significant association (P=0.56) was found. On comparing the association between durability and level of education, a statistically significant association (P=0.02) was obtained.

Table 1: Distribution of socio-demographic variables

Socio-demographic variables	Years	n %
Age	21–30	44%
	31–40	43.5%
	>41	12.5%
Gender	Male	32.8%
	Female	67.2%
Marital status	Married	71.0%
	Unmarried	29.0%
Education	Graduates	62.2%
	Post-graduates	37.8%

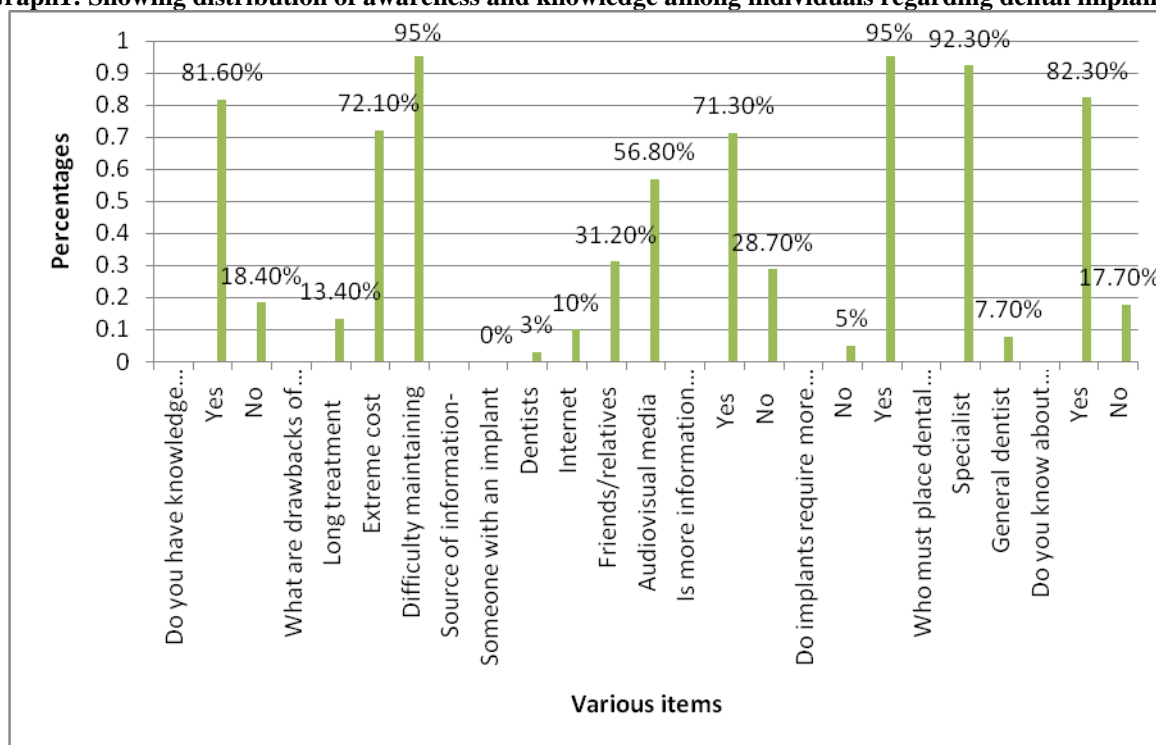
Table 2: Distribution of awareness and knowledge

Questions	n (%)
Do you know about dental implants?	
Yes	81.6%
No	18.4%
What are the drawbacks of implant-supported prosthesis?	
Long treatment	13.4%
Extreme cost	72.1%
Difficulty maintaining	95%
Source of information-	
Someone with an implant	0%
Dentists	03%
Internet	10%
Friends/relatives	31.2%
Audiovisual media	56.8%

Table 3: Distribution of attitude

Questions	n (%)
Is more information required for implants?	
Yes	71.3%
No	28.7%
Do implants require more hygiene?	
No	05%
Yes	95%
Who must place dental implants?	
Specialist	92.3%
General dentist	7.7%
Do you know about the functional outcome of implant-supported prosthesis?	
Yes	82.3%
No	17.7%

Graph1: Showing distribution of awareness and knowledge among individuals regarding dental implants



DISCUSSION

In the present study, it was observed that 81.6% of individuals were aware of dental implants which is in sharp contrast to Wazir et al who reported only 30% had awareness regarding dental implants. On analyzing the major sources of information concerning the dental implants, in 70% of cases dentists were the main source, 20% of cases were attributed to social media; 80% received information from dentists. 65 % of individuals approved of a good rate of success achieved by dental implants, 20 % regarded esthetics as the primary reason while 15 % cited good functionality. The most frequent reason for not choosing dental implants as a choice of treatment was its high cost which was observed in 55 %, long time for treatment was the second most common reason in 30 % of individuals, and requirement of surgical intervention was the third most frequent reason in 15 % cases. 40 % of the study cohort believed that all must opt for using dental implants. Approximately 60 % of individuals thought that the most frequent complication observed with dental implants was its failure, infection was cited as another reason by 30 % of cases and 10 % had no idea regarding the longevity of implants. Around 68 % recommended opting for dental implants to their friends and family, 12 % gave a negative reply while 20 % did not know this. 58 % believed that dentists themselves should be the main source of awareness. [14]

Similarly, Arora et al (2019) found that 74% were unaware regarding implant as a modality of treatment. Most study participants who demonstrated awareness showed a higher level of education. 38% of

individuals reported that dentists were the main information sources regarding dental implants while 69% demonstrated interest in acquiring knowledge regarding the use of implants. 51.5 % demonstrated a willingness to undergo treatment if it was needed. [15] Likewise, Sinha et al (2019) in their study found that among 1000 responses that were received, 27 % of study respondents were moderately well informed regarding the use of dental implants as the choice of treatment. Around 9 % of study respondents had received treatment using dental implants while 17 % had good information regarding different alternative ways for replacement of missing teeth. Dental professionals were the primary means of information about the treatment using a dental implant, followed by their friends and the use of different audiovisual sources of media. 55.6 % of total study respondents felt that implants were as good as their teeth while in function. On the other hand, high treatment cost was a major limiting factor for implant-based treatment. [16] Our findings are supported by Alajlan et al (2019) who found that 91.5 % of study respondents knew about implants. The primary source of information for 45.5% was their friend circle. 38 % of study respondents did not have any idea regarding the importance of oral hygiene in the maintenance of implant systems when compared to natural teeth. 28.5% of study participants expected implants to last for a duration ranging between 10-20 years. [17] Rani et al (2017) in their survey analysis reported that 47.3 % of study respondents had previous knowledge concerning dental implants as a methodology of treatment and dental professionals were the basic source of information. Very few study subjects had

undergone implant replacement. The most frequent reason for not choosing implants was extremely high charges of treatment.^[18] Similarly, in our study also the high cost was cited as a factor in 72.1% of individuals.

Tomruk et al (2014) observed that the rate of awareness regarding implants was 27.7%. 6% of study subjects had good information while 48.2% exhibited poor information. The most frequent sources of information concerning implant systems were dental professionals (44.5%), print media (31.6%), and friends along with close acquaintances in 17.3% of cases, respectively.^[19] In the present study, 31.2% got information from their friends and relatives.

Awooda et al (2014) observed that 68.5 % of study subjects had awareness related to dental implants. The primary source of any information concerning dental implants for 38.2 % of study samples were their relatives as well as friends.^[20]

Famarzi et al (2012) reported that 60% knew about dental implants. Dentists were found to be the major information source (42%) related to dental implants.^[21]

Al-Johany et al 2010 reported in their observations that 66.4 % of dental patients were having some amount of awareness concerning dental implants. 31.5 % of patients got information on dental implants from their relatives and friends.^[22]

Grogono et al (1989) assessed the attitude of patients for placement of prosthetic implants by comparing them before and after the following therapy. They concluded that the level of satisfaction derived from implant-based prosthesis was significantly higher when compared to conventional modalities of treatment. 88% of study participants reported an improvement in their level of confidence.^[23]

CONCLUSION

Most patients remain completely unaware regarding dental implants as a suitable option for replacing missing teeth. In our study, Dental professionals were the main basis of information. Patient education related to implants must involve dentists. High treatment cost was the chief barrier for anyone to undergo implant placement.

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