

Dental implants as tooth replacement option among patients in government hospitals Lagos, South-West Nigeria

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ABSTRACT

Objective: To assess awareness of dental implant as a treatment option, among patients requiring replacement of missing teeth in government hospitals in Lagos Nigeria. **Methodology:** This cross-sectional study was carried out among subjects attending dental clinics in government hospitals using an interviewer-administered questionnaire. The structured questionnaire included information on educational background, source of knowledge of implants and willingness to have implants as a treatment option for replacing their missing teeth. The Chi-square test of association was used where appropriate. The difference was taken as significant at an alpha level of $P < 0.05$. **Results:** A total of 425 subjects were surveyed, 49.2% males and 50.8% females, the mean was 35.87 (± 14.07) years. Awareness of dental implant was indicated by 20.2% of the participants. Knowledge about implants among those aware showed 36% did not know where implants are placed while 35 (40.7%) were not willing to have implant placements. Cost (48.6%) and fear of surgical procedure (40%) were among reasons given for not wanting implants placement. Dentists formed the major (38.6%) source of information on implants. There was a significant increase in the knowledge of implants with increased level of education ($P = 0.00$). **Conclusion:** Awareness and knowledge about dental implant among the population studied were low. Majority of them displayed incomplete and incorrect information. There is a need for dental education on the merits of implant placement and patients must be able to access accurate information from the dentist and other modes of spreading information.

KEYWORDS: Attitude, dental implants, information, patient knowledge, tooth replacement

Introduction

The need for replacement of missing teeth is a common presenting complaint among adult patients who visit the dental clinic. Associated problems of tooth loss include functional, esthetic and psychological challenges.^[1] Tooth loss may be partial or complete and several options are available to solve this problem, these include removable partial or complete dentures, fixed dental bridge and dental implants.^[2]

Dental implant offers the best option for the replacement of missing teeth. It provides excellent long-term results by the fact that the implant-supported prosthesis offers increased retention, stability, functional efficiency and a better quality of life.^[3] A dental implant is an artificial root that is

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surgically inserted into the jawbone to support a single tooth replacement (crown), fixed partial or complete denture, or maxillofacial prosthesis.^[4] The advancement in dental and information technologies have patients increasingly seeking dental implant as a treatment option in replacing missing teeth. Its advantages over other options of tooth replacement include the preservation of hard tooth structure (enamel and dentin) and of bone.^[5] An implant-retained prosthesis also provides higher patient satisfaction than the conventional denture.^[6]

Studies carried out in some countries to assess the knowledge of patients on dental implant have shown varied reports.^[7-12] A survey by Zimmer *et al.*^[7] demonstrated a high awareness as well as positive attitude toward dental implant therapy. Ozçakir Tomruk *et al.*^[11] showed 43.5% awareness on the dental implant as a replacement option for missing teeth in his study among Turkish populations, while a study in Saudi Arabia^[8] showed an awareness of 66.4%. Studies in India among the urban population and South Coastal Karnataka population showed awareness of 23.24% and 26%, respectively.^[9,12]

It is important to give patients information on the different types of prostheses available; this must include information on implant treatment and alternative therapies. Appropriate information when provided helps to guide the patient in choosing the option that is most suitable.^[13] Lack of information and knowledge about restorative options due to dentists not giving adequate advice serve as barriers to seeking treatment.^[14]

Knowledge and proficiency in dental implant treatment are also important for dentists who may be the source of this information. Akeredolu *et al.*^[15] carried out a study on knowledge, attitude and practice of implantology among Nigerian dentists. The study reported that 98.7% of the dentists had never used dental implants as a method of tooth restoration. Although 42.9% of them rated implants as the best option for replacement of missing teeth, only 1.3% claimed to have used dental implants. This revealed that there was a substantial barrier between knowledge and actual implant practice and this may be due to lack of equipment, material and training. Mgbeokwere *et al.*^[16] also reported low awareness (9.7%) on dental implant among health workers in government dental clinics Enugu, Nigeria. The only study available on awareness of dental implants among Nigerians who are not health workers was carried out in a single tertiary hospital.^[17]

The aim of this study therefore is to assess the knowledge and attitude of a wider variety of Nigerian patients toward dental implant as a treatment option in replacing missing teeth.

Methodology

A cross-sectional study was carried out in Lagos, South-West Nigeria, among patients attending the dental outpatient clinic of government teaching and general hospitals. The hospitals list was obtained from the Lagos health management board. These hospitals are easily accessible and affordable to patients and form a good representation of population from all socioeconomic background. A list of 21 hospitals was obtained using a sampling frame of 1 in 3, seven hospitals were selected, two teaching hospitals in the state were also included with the hospitals selected giving a total of nine hospitals. A pilot study was carried out in one of the teaching hospitals to test for clarity of the questionnaire and corrections were made accordingly, these patients were not included in the study.

All patients who had registered in the outpatients oral diagnosis clinics formed the target population, and questionnaires were administered by an interviewer. Only patients who were above 18 years and who gave verbal consent after explanation of the study were included. The structured questionnaire included information on educational background, source of knowledge of implants and willingness to have implants as a treatment option for replacing their missing teeth. The survey was carried out over a period of 4 months.

Ethical approval was obtained from the Health Research Ethics Committee of the Lagos University Teaching Hospital.

The collected data were analyzed using SPSS version 20 statistical software. *IBM Corporation (Armonk, New York, USA). The Chi-square test of association was used where appropriate. The difference was taken as significant at an alpha level of $P < 0.05$.

Results

A total of 425 patients were surveyed, 49.2% males and 50.8% females giving a near equal male to female ratio. The age range of the study population was 18–85 years with a mean age of 35.87 (± 14.07) years. Majority of the respondents 271 (63.8%) had tertiary education. Table 1 summarizes other demographic data of the patients. Of the total sample population seen the number of patients who had missing teeth was 193 (45.4%), those who had replaced their missing teeth were 32 (16.6%). Common types of tooth replacements were acrylic partial denture 26 (81%) and fixed bridges 6 (19%).

Assessment of the level of knowledge on implants showed that only 20.2% respondents knew about dental implants. Even among these patients who claimed to know about

implants, 36% of them did not know where implants are placed. When asked on the knowledge of the lifespan of implants, majority 64 (74.4%) did not have an idea as shown in Table 2.

Over half of the participants 51 (59.3%) that were aware of dental implants were willing to replace missing teeth with implants, whereas those not willing to have implants 35 (40.7%) gave various reasons that included high cost (48.6%), fear of surgical procedure (40%), and other reasons as shown in Table 3.

The dentist formed 38.6% of the source of information, this was followed by the internet 22.8%, the media formed 9.4%, and oral health care professionals, friends, and relatives formed 7.9%, while medical doctors and nurses formed 3.9% [Figure 1].

A higher proportion of females knew about dental implants, this was, however, not statistically significant ($P = 0.75$). Those that belong to the 20–39 years had more knowledge of implants (58.4%) than other age groups. The knowledge of implants decreased as the age increased but this was not significant ($P = 0.24$). There was a significant increase in the knowledge of implants with an increase in the level of education ($P = 0.00$), those with tertiary education (63.8%) had more knowledge of implant than those having other educational backgrounds.

Discussion

Government hospitals in Nigeria are usually subsidized and payments for dental treatment are usually minimal and affordable to patients who mostly pay out of their pockets. The patients who seek treatment at these hospitals form a good representation of patients who seek dental treatment.

Awareness of dental implants among the study population as an option in replacing missing teeth was low. Despite the finding in this study that almost half of the participants (45.4%) had missing teeth, the common types of replacement were removable dentures (81%) and fixed bridges (19%). The pattern of tooth replacement seen in this study also corroborates a previous study in a teaching hospital that reported partial denture as the most common type of tooth replacement.^[18] This has been attributed to the cheap and affordable nature of this treatment.^[19]

The levels of awareness displayed by participants about dental implants was significantly low (20%) when compared with other studies in developed countries that ranged from 77%, 72%, and 70% in America,^[7] Austria,^[10] and Norway,^[6] respectively. The difference may therefore be a reason of economic development of the country, because a similar level of 23.24% was reported in India,^[9] a developing country like Nigeria. The low level of knowledge about

Table 1: Respondents' sociodemographics and knowledge about dental implants

	Knowledge about dental implants		Percentage	P
	Yes	No		
Age (years)				
≤19	4	24	6.6	0.24
20-39	57	191	58.4	
40-59	22	89	26.1	
60-79	3	34	8.7	
80-99	0	1	0.2	
Total	86	339	100	
Sex				
Male	41	168	49.2	0.75
Female	45	171	50.8	
Total	86	339	100	
Level of education				
No formal education	1	14	3.5	0.00*
Primary school	2	21	5.4	
Secondary school	10	106	27.3	
Tertiary education	73	198	63.8	
Total	86	339	100	

* <0.00 . Statistically significant

Table 2: Level of information on implants placement and lifespan

	Frequency (%)
Awareness of dental implants	
Yes	86 (20.2)
No	339 (79.8)
Total	425 (100.0)
Knowledge of implant placement	
Gum	27 (31.4)
Jaw bone	28 (32.6)
Adjacent tooth	0 (0)
I don't know	31 (36.0)
Total	86 (100.0)
Knowledge of lifespan of implants	
<5 years	1 (1.2)
<10 years	2 (2.3)
Lifelong	19 (22.1)
I don't know	64 (74.4)
Total	86 (100.0)
Demerits of implants	
Affordable	35 (40.7)
Nonaffordable	46 (53.5)
I don't know	5 (5.8)
Total	86 (100.0)

Table 3: Willingness to have implants done

	Frequency (%)
Willingness to replace missing teeth with implants	
Yes	51 (59.3)
No	35 (40.7)
Total	86 (100.0)
Reason for not being willing to have implants*	
Fear of surgical procedure to place the implant	14 (40)
Multiple visits required to complete the treatment	8 (22.9)
High cost of treatment	17 (48.6)
The tooth/teeth need replacement after sometimes	3 (8.6)
Not clear about the procedure	9 (25.7)
Total	51*

*Multiple answers were allowed so total exceeded the number of subjects who were not willing to have implants

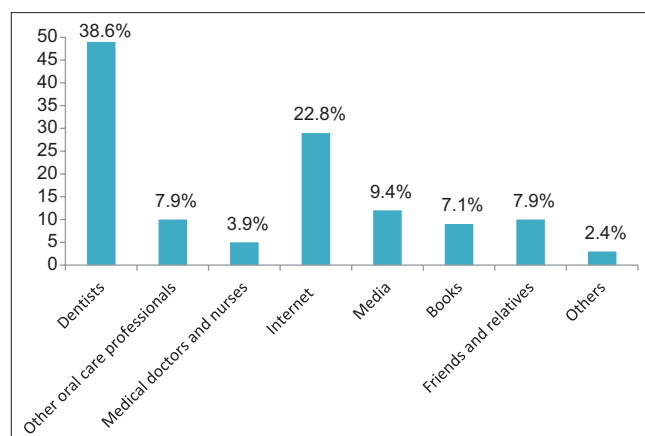


Figure 1: Sources of information on dental implants

dental implants displayed by the participants in this study further corroborates a similar low level (28.9%) reported by Gbadebo *et al.*^[17] among patients in a tertiary hospital.

The awareness of dental implants was not significantly different among age groups, though a higher percentage (58.5%) of those who were aware of implant belonged to the 20–39 years age group. Similar finding was also noted in a study in Malaysia^[20] where a higher awareness was among the 21–40 years' age group (54.5%). This may be attributed to the increased interest in dental treatment among the younger generation and changing attitudes toward the advancements in medical and dental technology^[9] and increased access to information. Awareness of implants increased significantly ($P = 0.00$) with increased level of education.

The major source of information about dental implants was given by the dentist (38.6%), a similar finding of 44.5% was reported by Ozçakir Tomruk *et al.*^[11] Some other studies have also showed the dentist as a major source of information.^[17,18] The practice of implantology is still very low in Nigeria, as only 1.3% dentists had employed implants in their practice as recorded in a study by Akeredolu *et al.*^[15] This was adduced to lack of adequate equipment and the need for training of dentists. There is a need for increased training and capacity building with implants courses so that dentists will be able to give adequate information and enlightenment on dental implants. Other studies have reported the media and internet as the major sources of information on dental implants.^[6,7] This study also revealed that the internet (22.8%) and media (9.4%) are the next common sources of information after the dentists. There is the need to post and project correct information on the internet by recognized dental bodies that can be easily assessed by patients and other information seekers.

Though 20.2% of the total population claimed they are aware of dental implants, there was a lack of knowledge on the placement of implants as 7.3% did not know where implants

are placed in the mouth and 6.4% had wrong information and reported they are placed in the gum. Only 6.6% had correct information where implants are placed. Hence, there was a high level of incomplete and incorrect information about implants placement among the study population.

When asked about the lifespan of the implants among those who were aware, most of the patients (74.4%) did not know while (22.1%) had an unrealistic expectation of it lasting life long. This indicates a lack of information and in some instances wrong information. The need for further dental education is also highlighted here.

The major demerit of implants identified by the study population was that it was not affordable (53.5%) and high cost (48.6%) was the main reason for not wanting implants placement. High cost has been found to be one of the major hindrances in the placement of implants in most studies.^[3,9,20] There may be the need for dental insurance to help make the implants treatment affordable. There may also be the need to give a better explanation about the advantages and disadvantages of different tooth replacement options so as not to make cost the only consideration but help patients make informed decisions. Fear of surgical procedure (40%) was the second major reason for not wanting implant placement. Similar reports of fear of surgery next to high cost were common reasons for not having implants placements in other studies.^[8,10] This reveals that dentists will need to allay the fears of the population by enlightenment that implant placement is a minor surgical procedure and not a major surgery. This further indicates the need for dental education.

Conclusion

The awareness and knowledge about the dental implant in this study was low. The level of knowledge about implants increased with higher level of education. There was incomplete and incorrect information about implants among the study population, especially a lack of knowledge on the placement of implants. The major reasons for being unwilling to have implants tooth replacement was cost, followed by fear of surgical procedure.

Dentists were the main source of information. There is a need for dentists to have more training on implants placement, especially at the undergraduate level in order to give correct information and allay fear of surgery. Dental education of the patients about implants placement and its merits are also necessary. There is the need to be able to access correct information from the dentists and through other modes of information dissemination.

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Conflicts of interest

There are no conflicts of interest.

References

- Craddock HL. Consequences of tooth loss: 1. The patient perspective – Aesthetic and functional implications. *Dent Update* 2009;36:616-9.
- Al-Quran FA, Al-Ghalayini RF, Al-Zu'bi BN. Single-tooth replacement: Factors affecting different prosthetic treatment modalities. *BMC Oral Health* 2011;11:34.
- Zitzmann NU, Sendi P, Marinello CP. An economic evaluation of implant treatment in edentulous patients-preliminary results. *Int J Prosthodont* 2005;18:20-7.
- Nallaswamy VD, Karthikeyan R, Vinaya B. Textbook of Prosthodontics. New Delhi, India: Jaypee Brothers Medical Publishing; 2003. p. 720-30.
- Narby B, Kronström M, Söderfeldt B, Palmqvist S. Changes in attitudes toward desire for implant treatment: A longitudinal study of a middle-aged and older Swedish population. *Int J Prosthodont* 2008;21:481-5.
- Berge TI. Public awareness, information sources and evaluation of oral implant treatment in Norway. *Clin Oral Implants Res* 2000;11:401-8.
- Zimmer CM, Zimmer WM, Williams J, Liesener J. Public awareness and acceptance of dental implants. *Int J Oral Maxillofac Implants* 1992;7:228-32.
- Al-Johany S, Al Zoman HA, Al Juhaini M, Al Refeai M. Dental patients' awareness and knowledge in using dental implants as an option in replacing missing teeth: A survey in Riyadh, Saudi Arabia. *Saudi Dent J* 2010;22:183-8.
- 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.
- Tepper G, Haas R, Mailath G, Teller C, Zechner W, Watzak G, *et al.* Representative marketing-oriented study on implants in the Austrian population. I. Level of information, sources of information and need for patient information. *Clin Oral Implants Res* 2003;14:621-33.
- Ozçakir Tomruk C, Ozkurt-Kayahan Z, Sençift K. Patients' knowledge and awareness of dental implants in a Turkish subpopulation. *J Adv Prosthodont* 2014;6:133-7.
- Bhat AM, Prasad KD, Sharma D, Hegde R. Attitude toward desire for implant treatment in South Coastal Karnataka population: A short-term epidemiological survey. *Int J Oral Implantol Clin Res* 2012;3:63-6.
- Guyatt GH, Cook DJ. Health status, quality of life, and the individual. *JAMA* 1994;272:630-1.
- Kikwili EN, Frencken JE, Mulder J, Masalu JR. Barriers to restorative care as perceived by dental patients attending government hospitals in Tanzania. *Community Dent Oral Epidemiol* 2009;37:35-44.
- Akeredolu PA, Adeyemo WL, Gbotolorun OM, James O, Olorunfemi BO, Arotiba GT. Knowledge, attitude, and practice of dental implantology in Nigeria. *Implant Dent* 2007;16:110-8.
- Mgbeokwere U, Okoye L, Ekwueme O. A survey of the knowledge of dental implants as a choice in treatment of edentulous jaws among health workers in government dental clinics in Enugu. *Ann Med Health Sci Res* 2011;1:91-5.
- Gbadebo OS, Lawal FB, Sulaiman AO, Ajayi DM. Dental implant as an option for tooth replacement: The awareness of patients at a tertiary hospital in a developing country. *Contemp Clin Dent* 2014;5:302-6.
- Oremosu OA, Umesi DC, Savage OH. Pattern of tooth replacement and color choice in a Nigerian teaching hospital. *Nig Q J Hosp Med* 2014;24:169-74.
- Kumar RC, Pratap KV, Venkateswararao G. Dental implant as an option in replacing missing teeth: A patient awareness survey in Khammam, Andhra Pradesh. *Indian J Dent Sci* 2011;3:33-7.
- Kohli S, Bhatia S, Kaur A, Rathakrishnan T. Public knowledge and acceptance of dental implant treatment in Malaysian population. *J Interdisciplinary Dent* 2014;4:76-80.