



## Dental Surgery

## AWARENESS, KNOWLEDGE, AND PERCEPTION OF DENTAL IMPLANT AMONG PATIENTS AT A TERTIARY HOSPITAL IN NORTHWESTERN NIGERIA

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**ABSTRACT** **Background:** A dental implant is a prosthesis that interfaces with the jawbone or cranium which is sunk to provide a dental prosthesis such as crown, bridge and denture or provide support for facial prosthesis or act as anchorage to orthodontic appliances. Implants are more retentive, more stable, stronger, functionally effective and provide better quality of life. The aim of this study was to determine the awareness, knowledge and perception of patients attending Dental Department of Federal Medical Centre Gusau, Zamfara State in the clinical applications of dental implant. **Methodology:** A questionnaire-based study was conducted amongst patients attending dental surgery department in Federal Medical Centre Gusau, Zamfara State, Nigeria. A total of 408 participants were recruited through simple random sampling technique. A Self-administered questionnaire was used to collect data which was analyzed using the Statistical Package for Social Sciences (IBM SPSS) software version 21. **Results:** There were 160 (39.2%) males and 248 (60.8%) females with a mean SD of 32.3 11.23 years. Majority (59.8%) of the respondents have not heard about dental implant before, while 164 (40.2%) respondents were aware of the dental implant and majority (n=88) source their information from dentist. Majority (80.5%) selected removable partial denture as alternative option for the replacement of missing teeth. 120 (73.2%) participants know that implant is placed in the jawbone. The perception about the durability of dental implant was good as 152 (92.7%) participants believed that it is durable. 72 (43.9%) participants opted to replace their missing teeth with an implant. The reason for rejecting the implant was due to high cost (43.9%) followed by fear (22%). There is no statistically significant difference in terms of awareness of dental implant between gender with a p-value of 0.086. However, there is statistically significant difference when compared with the level of education with a p-value of 0.000. **Conclusion:** The awareness, knowledge and perception about dental implant is appreciable. However, cost of treatment is the major hindrance preventing accessibility to implant treatment.

**KEYWORDS :** Patients, Awareness, Implant

### INTRODUCTION:

It was once a norm in the society to consider loss of teeth which often times lead to edentulism as nothing but a pathway into ageing<sup>1</sup>. However, a different view has been in existence which regards the loss of natural teeth as a health problem associated with functional, esthetic and psychological morbidities since antiquity<sup>2</sup>. The functional problems that may arise secondary to loss of teeth include impairment in speech and mastication, as well as diminished social interaction as a result of embarrassment with edentulousness especially when it affects the anterior teeth<sup>3</sup>. Until recently, fixed partial denture and conventional denture in form of removable partial denture and complete denture were the only available options for the replacement of lost teeth. These options have their demerits just as they have merits. Some of the demerits may include loose or rocking dentures that may disturb speech in social gatherings, impaired taste sensation, food packing with its attendant consequences like foul odor, gingival inflammation among others.<sup>3</sup> A serious consequence of fixed partial denture (Bridge) is the fact that a healthy tooth may be compromised in the process of crown preparation of the abutment with attendant deleterious effects such as pulpal irritation, inflammation and in some instances necrosis.<sup>2</sup> Furthermore, a greater percentage of patients using removable prosthesis often find it difficult to adapt to it and end up not enjoying the functionality that is expected from its utilization.

These drawbacks highlighted above, often make some patients seek for alternative form of management that would be more suitable and devoid of such challenges. As such, the advent of implant dentistry whose public awareness became high amongst the US citizens in 1992 proffer a very reliable solution to the quest of most patients as it is proven to be more retentive, more stable, stronger, functionally effective and provide better quality of life as well as long-term results.<sup>1,4</sup>

Quite a handful of researches were conducted in Nigeria about the knowledge and awareness of patients regarding Dental Implant; and to the best of our knowledge, not a single research was carried out in

Zamfara state. Hence, this research is aimed at exploring the awareness, readiness and perception of patients attending Dental Department of Federal Medical Centre Gusau, Zamfara State regarding dental implant.

### MATERIALS AND METHODS:

Having obtained ethical approval from the ethical review committee of Federal Medical Centre Gusau with a reference number FMC/2021/985/008, a questionnaire-based study was conducted among patients attending dental surgery department in Federal Medical Centre Gusau, Zamfara State, Nigeria between January 2022 to June 2022. Out of the 500 questionnaires distributed, a total of 408 participants who fulfill the required criteria were recruited. They were selected by a simple random sampling technique. A Self-administered questionnaire which was pretested through a pilot study was used to collect data. The investigator personally explained and delivered the questionnaires to the respondents. They were then allowed to fill and return it before leaving the clinic. Those patients who could not fill and return before leaving the clinic were excluded from the study to prevent bias. Data collected was preserved in strict confidentiality and all records of the participants were kept in anonymity. The collected data was analyzed using the Statistical Package for Social Sciences (IBM SPSS) software version 21.

### RESULTS:

A total of 408 (81.6%) questionnaires were retrieved out of the 500 questionnaires distributed giving a response rate of 81.6% with resultant attrition rate of 18.4%. This comprised of 160 (39.2%) males and 248 (60.8%) females with a male to female ratio of 1:1.5 (Table 1). The mean age of all the participants was 32.3 11.23 years with male having a mean of 35.3 10.90 while the female had a mean of 30.4 11.05 (Table 1). Out of the 408 participants, 20 (4.9%) had primary education, 120 (29.4%) had secondary education, 188 (46.1) had tertiary education, and 80 (19.6%) had informal education (Figure 1). More than a half n= 244 (59.8%) of the respondents have not heard about dental implant before, while 164 (40.2%) respondents are aware

of the dental implant (Figure 2). More than half n=88 (53.7%) of the respondents who were aware of the dental implant source their information from dentist (Table 2). Majority n=132 (80.5%) selected removable partial denture as alternative option for the replacement of missing teeth (Table 2). The studied participants exhibited good knowledge of where the implant is placed in the oral cavity as majority n=120 (73.2%) knows that it is placed in the jaw bone (Table 2). The perception about the durability of dental implant is good as 152 (92.7%) of the participants believed that it is durable and can last for a very long time (Table 2). Only 44 (26.8%) participants had missing teeth and 72 (43.9%) opted to replace their missing teeth with an implant (Table 2). The reason for not selecting the implant as an option was majorly due to its perceived high cost n= 72 (43.9%) followed by fear which accounts for 36 (22%) of the respondents (Table 2). Only 24 (14.6%) of the respondents had dental prosthesis at the time of the study. There is no statistically significant difference in terms of awareness of dental implant between gender with a p-value of 0.086. However, there is statistically significant difference when compared with the level of education with a p-value of 0.000. (Table 3)

**Table 1: Descriptive Statistics Of Gender And Age**

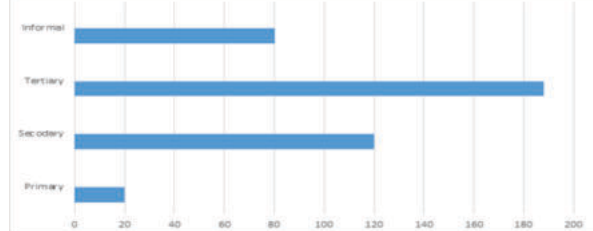
Gender	Mean Age	Frequency(%)
Male	35.35	160 (39.2)
Female	30.46	248 (60.8)
Total	32.38	408 (100)

**Table 2: Knowledge, Perception And Attitude About Dental Implant**

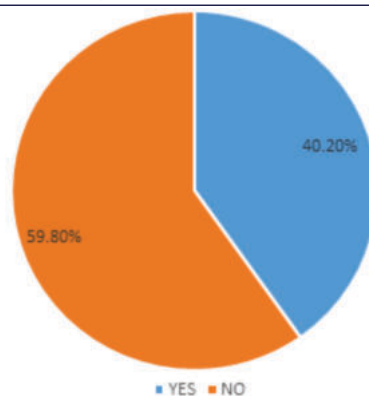
Sources of information about dental implant	Dentist	n (%)
	Relatives	88 (53.7)
	Friends	20 (12.2)
	Media	32 (19.5)
Where do you think implant is placed?	Jaw bone	120 (73.2)
	Gum	44 (26.8)
Do you think implant is durable?	Yes	152 (92.7)
	No	12 (7.3)
Do you have any missing tooth?	Yes	44 (26.8)
	No	120 (73.2)
Would you like to replace your missing tooth with an implant?	Yes	72 (43.9)
	No	92 (56.1)
Factors that hinder the choice of implant	Fear	36 (22.0)
	Cost	72 (43.9)
	Long duration	28 (17.1)
	Lack of information	28 (17.1)
What other option do you prefer?	Removable partial denture	140 (85.4)
	Fixed partial denture	24 (14.6)
	Are you wearing any dental prosthesis now?	Yes
	No	143 (85.6)

**Table 3: Comparison Of Gender And Level Of Education With Awareness About Dental Implant**

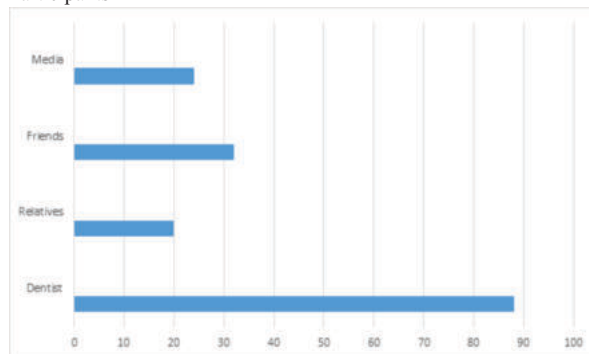
	Have you heard of dental implant?			Test statistics
	Yes	No	Total	
Gender				$\chi^2 = 2.956$ df=1 p-value= 0.086
Male	56	104	160	
Female	108	140	248	
Total	164	244	408	
Level of education				$\chi^2 = 58.465$ df=3 p-value= 0.000
Primary	0	20	20	
Secondary	44	76	120	
Tertiary	108	80	188	
Others	12	68	80	
Total	164	244	408	



**Figure 1: Showing Level Of Education Amongst The Participants.**



**Figure 2: Showing Awareness About Dental Implant Amongst Studied Participants**



**Figure 3: Bar Chart Showing Sources Of Information About Dental Implant Amongst Participants.**

**DISCUSSION:**

The advent of dental implant has given solutions to most of the drawbacks experienced by patients when their missing teeth are replaced with either removable or fixed partial denture. Nonetheless, there is still a gap in the level of awareness, knowledge and access to this novel innovation in the field of dentistry.

This study has explored the awareness, knowledge and perception of patients about dental implant in addition to factors that might hinder its choice as a treatment option.

There were 160 (39.2%) male and 248 (60.2%) female giving a male to female ratio of about 1:1.5, this is almost in keeping with the study conducted by Mgbeokwere et al.<sup>2</sup> and Ceydar et al.<sup>5</sup> where they reported higher female to male ratio. This could be explained by the fact that females are more sensitive and concerned to their health than their male counterpart.<sup>2</sup> Furthermore, in this our environment most women are house wives, therefore they tend to have more time to seek for health than their husbands. However, this is contrary to what Prabhu et al.<sup>9</sup> and Nayana et al.<sup>10</sup> reported as they found higher number of male (55.35% and 59.2%) participants than female (44.6% and 40.8%) respectively.

Majority of the respondents (59.8%) were not aware of dental implant before, however, a significant percentage (40.2%) have heard about it. This is in contrast to the findings of the study conducted by Mbeokwere et al.<sup>2</sup> where they surveyed the knowledge of implant as a choice in treatment of edentulous jaws in Government Dental Clinics in Enugu. They reported that only 9.7% of the respondents were aware of the dental implant. This wide disparity between our study and the above could only be explained in two ways. First, in his study he drew his participants from the health workers of different health institutions in the state while we drew ours from the patients attending the dental clinic of our institution. It is therefore expected that patients attending the dental clinic would be more interested in knowing the details of what he/she is about to experience than the participants drawn from the the generality of health workers. Secondly, their study was conducted 11 years ago in the year 2011, as such with the passage of time, advancement in communication technology, and improvement in the area of implantology both in the number of specialist and level of expertise, a reciprocal increase in the awareness amongst patients as well as the general population would not come as a surprise. Our

finding on the awareness is closely similar to that of Maria et al.<sup>1</sup> and Suprakash et al.<sup>3</sup> where they reported 28% and 33.3% as their level of awareness respectively. There was no statistically significant difference between gender when compared with level of awareness with a p-value of 0.086. However, there is a statistically significant difference between the level of awareness when compared with the level of education with a p-value of 0.000 such that the level of awareness increases with increase in level of education. This is similar to what Suprakash et al.<sup>3</sup> and Prabhu et al.<sup>9</sup> reported. Suprakash et al. in their research titled Knowledge and attitude of patients toward dental implants as an option for replacement of missing teeth had a statistically significant difference in knowledge and attitude of patients towards implant when compared with location and level of education. According to them "Knowledge and attitude of patients toward implant increased with increase in education". Prabhu et al in their research also asserted that "As the level of education increases, the level of awareness also increases".

When participants were asked about the source of information on dental implant, majority (53.7%) declared dentist as their source of information. This is not astonishing considering the fact that the study was conducted amongst patients attending dental clinic; it is therefore possible that the dental surgeons and the dental auxiliaries would have educated them. Similar finding was reported by Maria et al.<sup>1</sup>, Suprakash et al.<sup>3</sup>, Maharjan et al.<sup>4</sup>, Cedar et al.<sup>5</sup>, George et al.<sup>6</sup>, Prabhu et al.<sup>9</sup>, and Nayana et al.<sup>10</sup>. Different findings were reported by Abdulrahman et al.<sup>7</sup> and Hilal et al.<sup>8</sup>. The former, reported Friends as the major source of information about dental implant (45.5%), while the latter reported Media as the main source of information (57.7%). The first study conducted by Abdulrahman et al. differs from ours in terms of methodology as they have not included Dentist as one of the options in the questionnaire which could result in higher percentage being allotted to Friends by the respondents. The second study conducted by Hilal et al.<sup>8</sup> is closely similar to ours, however, disparity in the socioeconomic factors as well as standard of living that exists between the two study areas could explain why Media had the highest percentage in the study conducted in Turkey.

Majority (73.2%) of the participants knows that implant is placed in the jaw bone. Similar findings were reported by Ceyda et al.<sup>7</sup> and Hilal et al.<sup>8</sup> with a percentage of 52.6 and 76.8 respectively.

Only 26.8% of the participants had missing teeth which could be because most of them are youth.

Regarding the longevity of dental implants, almost all the participants (92.7%) believe that it is durable. However, the reason for not selecting dental implant as a treatment option is largely (43.9%) due to highly exorbitant cost of the procedure followed by fear of the surgery (22.0%). Similar findings were reported by Suprakash et al.<sup>3</sup>, Anjana et al.<sup>4</sup>, George et al.<sup>6</sup>, Hilal et al.<sup>8</sup> and Prabhu et al.<sup>9</sup> with a value of 27.8%, 40.5%, 90%, and 43.9% respectively. This has shown that the cost of material and procedure for implant placement is the main hindrance preventing patients from accessing this novel alternative in the replacement of missing teeth universally. Despite the above finding, 43.9% of the participants would like to replace their missing teeth with an implant if it were to be affordable.

When asked about their preferred option for replacement of missing teeth, majority (85.4%) opted for removable partial denture. This has further strengthened the assumption that cost is one of the major barriers for access to dental implant in our study because the removable partial denture is very much affordable by the patients which informed why most of them opted for it.

## CONCLUSION:

The awareness, knowledge and perception about dental implant in the studied population is appreciable. Most participants were ready to accept dental implant as an alternative treatment for the replacement of missing teeth. However, cost of treatment is the major hindrance preventing accessibility to implant treatment.

## Recommendations:

1. National Health Insurance scheme is encouraged to include this novel procedure as part of the treatments being covered by the scheme so that patients can afford it with ease.
2. Continuous public enlightenment by dentists on the advantages of dental implant over the conventional fixed or removable partial

denture.

## Conflict Of Interest:

The authors have declared no conflict of interest in this study.

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