

Awareness and Attitude of Patients Presenting at the University of Port Harcourt Teaching Hospital to Tooth Replacement Options

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INTRODUCTION

Tooth loss is a relatively common occurrence that affects both children and adults. The resultant effects or consequences of tooth loss can be profound, as

ABSTRACT

Background: Tooth loss has significant functional and psychosocial consequences. Patient choice among available tooth replacement options is influenced by their awareness and attitudes, which are not well-documented in our setting. This study assessed the awareness and attitudes toward tooth replacement options among patients presenting at the University of Port Harcourt Teaching Hospital.

Methods: We conducted a cross-sectional study of 171 patients aged 18 years and above using a self-administered questionnaire. Data on socio-demographics, awareness of various treatment options, sources of information, and attitudes were collected. Analysis was performed with SPSS version 22.0 using descriptive statistics and chi-square tests.

Results: The mean age was 39.0 ± 8.1 years. Most respondents (90.1%) were aware that missing teeth could be replaced. Awareness was highest for removable acrylic dentures (78.6%) and lowest for dental implants (24.0%). The leading sources of information were dentists and the internet (42.2% each). A majority (86.5%) believed tooth replacement was important, primarily to improve function (75.0%) and aesthetics (70.7%). The primary determinants of choice were cost (100%) and the longevity of the prosthesis (79.1%). No significant associations were found between socio-demographic factors and awareness or attitude.

Conclusion: While general awareness of tooth replacement was high, knowledge of advanced options like implants was low. Attitudes were positive, but cost was the overriding factor influencing patients' decisions. Dentists need to provide more comprehensive counseling on all available prosthetic alternatives.

Keywords: Awareness; Attitude; Tooth Replacement; Dentures; Dental Implants

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there have been reports of speech impairment, inability to masticate effectively, possible psychosocial problems, and sometimes reduced oral health-related quality of life.¹ It has also been

reported to be highly traumatic and upsetting, as some persons can undergo detrimental social, emotional, and physical effects.²

Several aetiologies for tooth loss exist, such as: trauma, dental caries, periodontal diseases, infection, orthodontic treatments, developmental and systemic disorders.^(3, 2) Physical health benefits, functional, social, and psychological reasons are among the crucial factors that necessitate tooth replacement.^{4,5}

Tooth replacement services requested by patients depend on multiple factors, including patients' awareness of available dental prosthetic options. A better understanding of patients seeking tooth replacement can aid in selecting the most appropriate dental prosthesis. Aesthetics and functional comfort are also considered in the selection of dental prostheses, and in some patients, replacement of the anterior teeth is more critical than replacement of the posterior teeth.⁶

Several other factors, like age and gender, have also been found to affect the selection of dental prosthesis, as young persons may be more interested in implants than conventional prosthesis. Also, females may have more interest in early tooth replacement than males.⁶

The options for tooth replacement may be removable or fixed and also range from no replacement, removable acrylic dentures, removable metallic dentures, resin bonded bridges, conventional bridge, and implants.⁷ The option of not replacing a missing tooth is adopted when tooth replacement is not indicated or not possible, especially when oral function is adequate, as seen in shortened dental arches with at least four occluding premolar units available.⁷

Implants have been used for the replacement of missing teeth in both partially and completely edentulous individuals. They are preferred for prosthetic replacement as a result of conservation of teeth adjacent to edentulous space, better quality of life and improved confidence.⁸ It is usually the top option chosen when stability and conservation of adjacent teeth is of topmost consideration during tooth replacement.⁹

Certain factors can cause constraints in the health-seeking behaviour of patients requiring tooth replacement, and these can be financial, age, sex, socioeconomic status, educational level, and appearance. This can also affect the need or demand

for prosthodontic treatment.^{9,10} Even though several prosthodontic options are available for tooth replacement, the acceptability of these options depends on the level of education of the patient, age, socioeconomic status and cultural background of the patient.⁴ There is a need to understand the patient's needs and demands to determine the kind of treatment that ensures the patient's satisfaction with the dental service.¹¹

Awareness of patients about the available tooth replacement options would guide their decision-making process and this may also influence their attitude to replacing missing teeth. This study sought to determine the awareness and attitudes of patients to tooth replacement options in a tertiary institution.

MATERIALS AND METHODS

This was a descriptive cross-sectional study that involved one hundred and seventy-one patients who presented to the University of Port Harcourt Teaching Hospital Dental Center. Ethical approval was gotten from the University of Port Harcourt Teaching Hospital. Patients 18 years and above who consented to be recruited were given a self-administered questionnaire to obtain information on their demographics, such as age, gender, marital status, educational level, and occupation. Data collection was done over a period of a month.

Information was also collected on their awareness of tooth replacement and options, sources of information on tooth replacement, whether tooth replacement is important, and the factors that would influence their choice of tooth replacement.

The collected data were entered into an MS Excel spreadsheet and analyzed using IBM/SPSS Version 22. Simple descriptive statistics were generated. Chi-square test was used to establish relationships between categorical variables, while Fisher's exact test was used to test the association between several variables, and significance was set at $p<0.001$.

RESULTS

This study included patients aged 18 years or older, with a mean age of 39.04 ± 8.1 years. Female participants accounted for 56.1% of respondents, and 52% were married. Most participants (69.0%) had a tertiary education. Those with missing teeth accounted for 39.2% of respondents, and the main reason for tooth loss was extraction (62.7%). (Table 1)

Table 1: Socio-demographic characteristics of participants

Variable	Frequency (n=171)	Percentage
Age group (years)		
≤20	20	11.7
21-30	45	26.3
31-40	36	21.1
41-50	27	15.8
51-60	22	12.9
>60	21	12.3
Mean±SD	39.04±8.1	
Sex		
Male	75	43.9
Female	96	56.1
Marital status		
Single	71	41.5
Married	89	52.0
Others	11	6.5
Educational level		
Primary	6	3.5
Secondary	47	27.5
Tertiary	118	69.0
Have missing teeth		
Yes	67	39.2
No	104	60.8
Reason for missing teeth		
Developmental/ genetic	3	4.5
Extraction	42	62.7
Fell off	12	17.9
Trauma	10	14.9

Over 90% of respondents were aware that a missing tooth can be replaced, with 78.6% aware of removable (acrylic) dentures and 24% aware of dental implants. The percentage of respondents who were unaware of the need for missing tooth replacement was 9.9%. (Table 2)

The primary sources of information about tooth replacement were the dentist and the internet, accounting for 42.2% respectively. This was followed by information from friends and relatives at 37.7%. Audiovisual and print media were the lowest sources of information at 9.7% and 3.7%, respectively (Table 2).

One hundred forty-eight (86.5%) thought tooth replacement was important, with improved function (75.0%) cited as the primary reason for replacement. Improved beauty and speech accounted for 70.7% and 67.6%, respectively. Twenty-three respondents (13.5%) thought tooth replacement was not necessary, with unnecessary cost and unimproved

function cited as the reasons (Table 3). Only 16 participants had previously undergone tooth replacement, with 11 having an acrylic partial denture and 5 having a fixed partial denture (bridge). However, one hundred and fifteen (74.2%) of the respondents would consider tooth replacement if the need arises (Fig 1), with a removable acrylic denture being the most common tooth replacement option (40.9%). Cost (100%) and the longevity of the tooth replacement option (79.1%) were the most common factors in determining their choice of tooth replacement, respectively (Table 3). There were no statistically significant differences in the association between patients' age, gender, educational status, and occupation and their awareness of tooth replacement. There was also no statistically significant difference in their demographics and awareness when compared with their attitude towards tooth replacement (Tables 4 & 5).

Table 2: Awareness of tooth replacement among participants

Variable	Frequency (n=171)	Percentage
Awareness of missing teeth can be replaced		
Yes	154	90.1
No	17	9.9
*Options of tooth replacement awareness (n=154)		
Plastic artificial tooth (acrylic denture)	121	78.6
Metal Artificial tooth (metal-based denture)	58	37.7
Bridges	43	27.9
Implants	37	24.0
*Source of information (n=154)		
Dentist	65	42.2
Internet	65	42.2
Friends and relatives	58	37.7
Print media	5	3.7
Audiovisual	15	9.7

Table 3: Attitude toward replacing a missing tooth

Variable	Frequency (n=171)	Percentage
Think replacing teeth is important		
Yes	148	86.5
No	23	13.5
*If yes, why (n=148)		
Improve beauty	104	70.7
Improve function	111	75.0
Improve speech	100	67.6
*If no, why (n=23)		
Unimproved function	6	26.1
Unnecessary cost	20	87.0
Previous tooth replacement		
Yes	16	9.4
No	155	90.6
Type of tooth replacement		
Plastic artificial tooth	11	68.8
Bridge	5	31.2
Will consider replacing if the need arises (n=155)		
Yes	115	74.2
No	40	25.8
Potential option patients will consider (n=155)		
Plastic artificial tooth	47	40.9
Artificial tooth with metal attachment	21	18.3
Artificial attached to other teeth (bridge)	36	31.3
Artificial tooth implanted in bone	37	32.2
Factors determining the type of tooth replacement		
Cost of the tooth replacement option	115	100.0
How long the tooth replacement option would last	91	79.1
Other person's experience	43	37.4
If it requires surgery to replace the tooth	35	30.4
If multiple clinic visits is needed	30	26.1
If its removable or its fixed	39	33.9

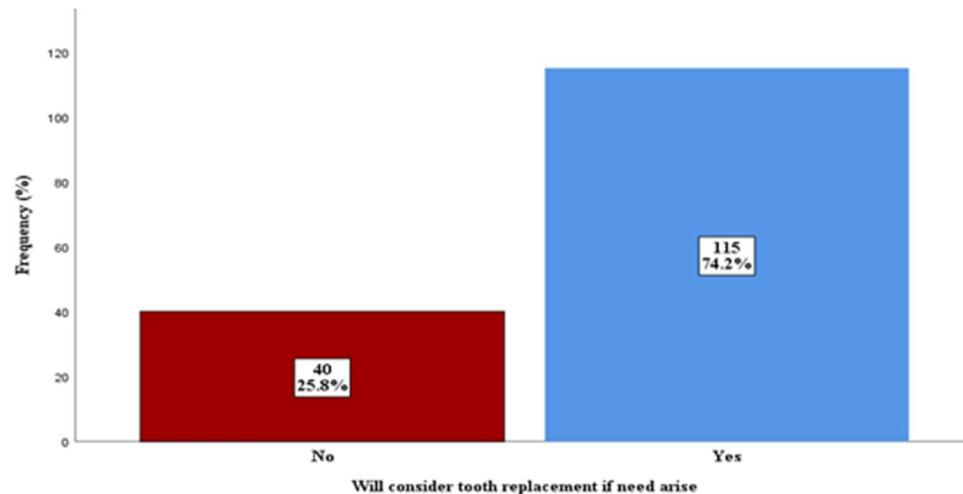


Figure 1: Response to willingness to replace missing tooth

Table 4: Association between awareness and socio-demographic characteristics

Variable	Yes (n=154)	No (n=17)	χ^2	p-value
Age group (years)				
≤20	17(85.0)	3(15.0)	2.034	0.844
21-30	41(91.1)	4(8.9)		
31-40	32(88.9)	4(11.1)		
41-50	25(92.6)	2(7.4)		
51-60	21(95.5)	1(4.5)		
>60	18(85.7)	3(14.3)		
Sex				
Male	68(90.7)	(9.3)	0.055	0.814
Female	86(89.6)	10(10.4)		
Marital status				
Single	62(87.3)	9(12.7)	1.030	0.579
Married	82(92.1)	7(7.9)		
Others	154(90.1)	1(9.1)		
Educational level				
Primary	6(100.0)	9(0.0)	1.132	0.568
Secondary	41(87.2)	6(12.8)		
Tertiary	107(90.7)	11(9.3)		

DISCUSSION

This study aimed to determine patients' awareness and attitudes toward tooth replacement options. Of the 171 participants, females accounted for a higher proportion (56.1%), which may be attributed to their positive health-seeking behaviour. A study by Mgbeokwere et al.¹³ also saw a higher number of female respondents. Patients aged 40 years and below accounted for the largest group in this study. The main reason for tooth loss among those with missing teeth was extraction (62.7%). Extraction is a major cause of tooth loss occasioned by untreated caries and periodontal disease¹⁴⁻¹⁶. Our findings

largely agree with current reports. Most participants were aware that a missing tooth can be replaced, and this is also reflected in several studies, in which awareness was high^{4,13}.

The awareness of the plastic acrylic tooth replacement option was the highest, likely because it's the most readily available and least expensive option in our environment. This finding is similar to those of Gbadebo et al. and Jayasinghe et al.^{17, 4}. However, Fang et al.² in their study, found dental implants to be the most common tooth replacement option preferred by patients, but when informed of the cost, the majority opted for removable dentures.

A study by Enabulele et al.¹⁸ revealed a very low level of exposure and experience with placing implants by the dentists they surveyed. Lack of experience may

cause dentists not to emphasize the advantages of implants over RPD, thus preventing patients from exploring implant placement.

Table 5: Association between attitude and selected characteristics

Variable	Think replacing teeth is important		χ^2	p-value
	Yes (n=154)	No (n=17)		
Age group (years)				
≤20	18(90.0)	2(10.0)	3.158	0.676
21-30	40(88.9)	5(11.1)		
31-40	30(83.3)	6(16.7)		
41-50	24(88.9)	3(11.1)		
51-60	20(90.9)	2(9.1)		
>60	16(76.2)	5(23.8)		
Sex				
Male	65(86.7)	10(13.3)	0.002	0.968
Female	83(86.5)	13(13.5)		
Marital status				
Single	61(85.9)	10(14.1)	0.327	0.849
Married	78(87.6)	11(12.4)		
Others	8(81.8)	2(18.2)		
Educational level				
Primary	5(83.3)	1(16.7)	0.465	0.762
Secondary	42(89.4)	5(10.6)		
Tertiary	101(85.6)	17(14.4)		
Have missing teeth				
Yes	55(82.1)	11(10.6)	1.883	0.170
No	93(89.4)	12(17.9)		
Aware that missing teeth can be replaced				
Yes				
No	134(87.0)	20(13.0)	0.286	0.593
	14(82.4)	3(17.6)		

Although, in this study, the main sources of information on tooth replacement options were the dentist and the internet, which corroborates other studies that report the dentist as the main source of information on tooth replacement options.^{17,19,20} Some researchers however, found the media and internet to be the main source of information in their study^{21,22}

Majority of the participants (86.5%) had a good attitude to tooth replacement as they thought it was important, with improved beauty and function being cited as the main reasons for its importance. Studies by Jayasinghe et al.⁴ and Reddy et al.²³ also reported a high percentage of respondents with a positive attitude toward tooth replacement.

A large number of the patients in this study would consider tooth replacement if the need arose (74.2%) and this may be due to the high rate of awareness among them. In this study, all patients cited cost as

the main factor in determining the type of tooth replacement they would accept. This may be due to our resource-challenged environment. This finding in variance to what was observed in a study by Al-Quran et al.¹² where damage to the neighbouring tooth was one of the most important factors, followed by pain and duration of the treatment. They however, noted that low-income earners considered cost more when choosing tooth replacement.

The longevity of the tooth replacement option was the second most important factor in this study, with other factors such as the need for multiple visits, removable or fixed, and whether the option requires surgery being less prominent determinants of patients' choice of tooth replacement option.

In this study, there were no statistically significant differences in the association between the sociodemographic characteristics of the respondents and their awareness and attitude to replacement of

missing teeth. Other studies had found socioeconomic and educational levels to be significant in the level of awareness and attitude to tooth replacement. Despite the majority of the respondents being highly educated, the level of awareness of implants as tooth replacement option was low. This could be due to low experience and exposure to implants amongst some Nigerian dentists¹⁸ which may prevent their offering patients the choice of implants.

Limitation: The primary constraint of this study was the fact that majority of the patients were fully dentate and that may have affected their response. Also, this study population was a hospital-based sample; this result may not be representative of the population at large. Hence, its use can only be limited to the studied population. A randomized population-based survey is recommended to give a better picture among Nigerians. In spite of these, the study has shown that knowledge of dental implant as a tooth replacement is low and its independent of socioeconomic class.

CONCLUSION

In this study, the level of awareness of tooth replacement was high with removable partial denture being the most popular replacement option. Patient attitude to tooth replacement was good; the cost of replacement was, however, the main determinant of type of replacement chosen. There is a need for increased patient information, especially by the dentists on other options available for the replacement of missing teeth.

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Conflicts of interest

There are no conflicts of interest.

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