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*Full Length Research Paper*

## **Impact of Tooth Loss on Individuals with Unrestored Partially Edentulous Arch in Southwestern Nigeria - A Preliminary Survey**

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### **ABSTRACT**

The impact of tooth loss on individual with unrestored partial edentulous space in the southwestern part of Nigeria was assessed. The study was a prospective study of 160 partially edentulous subjects. Trained dentist administered a validated questionnaire. Information sought included, sociodemographics, duration, of tooth loss, causes of tooth loss and reason for replacement. Data analysis was done using descriptive statistics & Chi Square. Mean age of subjects was 45.06+/- 14.22 years. Majority (63.1%) of subjects were traders. Eighty percent of participants were married. More than half (53.1%) of studied population resides in Lagos. Commonest cause of tooth loss was caries (42.5%). Impact on tooth loss showed negative impact on the smile (16.2%), speech (10.6%), mastication (30%), and self-confidence (13.7%). Less than half of the population (43.1%) was indifferent to replacement. Acceptability of appearance following tooth loss was influenced by marital status ( $p < 0.05$ ), location of teeth on the arch ( $p < 0.05$ ). Denture was believed to be a treatment option for tooth loss ( $p < 0.05$ ). There was adverse effect of tooth loss on mastication but little subjective effect on confidence, smiling, and speech. The major reason for not replacing was due to an indifferent attitude (50%) to replacement option and lack of awareness (24.4%). Aesthetics was a strong determinant for replacement.

**Keywords:** - *Unrestored tooth loss, Impact of tooth loss, Emotional effects, and partial edentulous arch*

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### **INTRODUCTION**

Tooth loss is a physical disability that is associated with aesthetics, functional, social and psychological impacts on lives of the individuals (Blomberg *et al*, 1983, Berg *et al*, 1984; Albrektsson *et al*, 1987; Murrell, 1988; Fiske *et al*, 1998). Psychological reactions to various forms of loss involving bodily organs following surgical operations such as hysterectomy and mastectomy have been documented in the literature (Blomberg *et al*, 1983) and are recognized to have profound effect on such individuals. Attention has also been drawn to the emotional effects of total and partial tooth loss with a wide range of reactions including feeling of bereavement, loss of self- confidence, concerns about appearance and self-image, keeping tooth loss a secret,

seeing it as a taboo subject that could not be discussed with people Davis *et al*, 2000, Fiske *et al*, 2001).

The record of replacement of lost teeth with artificial restorations is dated as far back as 1600-687BC. Boucher (1970) documented that Harold Supplee wrote in his notes on the evolution of complete and partial dentures that the Phoenicians (inhabitants of the country about Sidon and Tyre) made prosthetic appliances, using gold and silver wires, bands and rivets to bind lost and artificial teeth in place. Furthermore, Phoenicians also used human and oxen teeth for replacement. Currently, the options of replacement of missing tooth/teeth include removable partial and complete dentures, fixed dentures and recently, implants and implants retained prostheses. In this environment, acrylic removable partial dentures are the most commonly provided prostheses (Esan *et al*,

2004, Azodo *et al*, 2012) although it has a drawback of being a temporary restoration. Some of the reasons for its provision are that the technique of fabrication is relatively simple and fairly cheap. Acrylic dentures also have excellent appearance, relative adequate strength, reproduce surface details accurately and can be easily manipulated and repaired. On the other hand, its attending disadvantages include easy fracture and quick loss of mechanical retention. However, some individuals have been observed to carry edentulous spaces about as if it is the norm in our communities. This is a surprising but common scenario to behold especially when some of the artisans providing services in the dental offices will refuse to replace their missing teeth.

Literature did not reveal previous reports on the range of reactions to, and feelings about tooth loss on individuals with unrestored edentulous spaces in this community although a Nigerian study done by Okoje *et al*, 2012; reported a range of emotional effects of tooth loss observed amongst some patients in an urban dental hospital, which was also found to be similar to those effects documented in developed countries. It is therefore, necessary to ascertain the impact of tooth loss or otherwise on this group of individuals and also to provide reasons why they will not readily seek dental care to replace the missing teeth.

## SUBJECTS AND METHODS

This is a prospective and descriptive study carried out in the southwestern part of Nigeria. The survey was conducted in a randomly selected local government area each from two urban cities and these were Ibadan and Lagos. All consenting subjects with unrestored edentulous arch were included in the study while those with full dentition and those with restored arch were excluded.

Oral examination was carried out only to identify the missing tooth/teeth under day light illumination using sterile wood spatula. The missing teeth were noted and a trained dentist administered a structured questionnaire. The questions were based on questionnaire used for a qualitative study carried out on an open discussion among a small group of individual who had lost all or a few of their teeth (Davis *et al*; 2000). Information sought included sociodemographics, place of residence in the last 5yrs, duration of tooth loss, causes of tooth loss, and reason for not replacing it. The participants had the chance to express their views and to make added comments. The data from this descriptive study were analyzed using SPSS version 15.5. Chi square test was done to determine statistical significance. The statistical significance of outcomes was evaluated at 95%

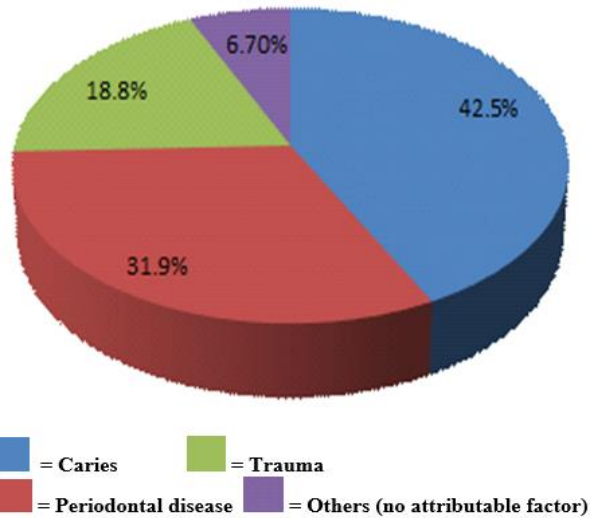
confidence level and significant association was determined if  $p < 0.05$ .

## RESULTS

A total of 160 partially edentulous subjects with a mean age 45.06+ 14.22 years were seen. Majority of the subjects (61.3%) seen were traders. Eighty per cent (80%) of those who participated were married (Table 1) and 53.1% of the population studied was resident in Lagos. The most common cause of tooth loss was caries (42.5%) followed by trauma (31.9%), and then periodontal diseases (18.9%), while 6.7% of the subjects could not attribute it to any reason, (Figure 1). The responses to questions on impact of tooth loss showed that it had an impact on the smile of 16.2% of the study population and only 10.6% reported that it affected their speech while it affected mastication in 30% of subjects and 13.7% felt their self-confidence was affected by their missing teeth (fig 2). About 56.9% of the population would like to replace the missing teeth while 43.1% would not like to replace missing teeth. The reason for not replacing were just do not care (50%), lack of awareness (24.4%), lack of money (22.5%) and not happy with former use of replacement option (3.1%).

**Table 1**  
Socio demographic characteristics of the responded

<b>Variable</b>	<b>Frequency (%)</b>
<b>Age (years)</b>	
11-25	1.5(9.4)
26-35	32 (20)
36-45	36 (22.5)
46-55	41 (25.6)
56-65	22(13.8)
66-75	12(7.5)
76-85	02 (1.2)
<b>Total</b>	<b>160 (100%)</b>
<b>Marital Status</b>	
Single	29 (18.1)
Married	128(80.0)
Widow/Divorced	3(1.9)
<b>Total</b>	<b>160(100%)</b>
<b>Occupation</b>	
Trading	98(61.3)
Civil servant	22(13.7)
Artisan	20(12.5)
Others	20(12.5)
<b>Total</b>	<b>160(100%)</b>



**Fig 1**  
Aetiology of tooth loss

Table 2 shows that majority of the married subjects accepted their appearance following tooth loss ( $p=0.01$ ). Most of the subjects with missing upper anteriors did not accept their appearance ( $p=0.006$ , Table 3). Table 4 shows that majority of those with missing upper anterior and lower posterior believe wearing a denture will make a difference ( $p=0.004$ ).

**Table 2**

Relationship of marital status and acceptability of appearance as a result of tooth loss

	Acceptability of Appearance		Total
	Not accepted	Accepted	
<b>Marital status</b>			
Single	10	19	29
Married	12	116	128
Divorced/widowed	0	3	3
<b>TOTAL</b>	<b>22</b>	<b>138</b>	<b>160</b>

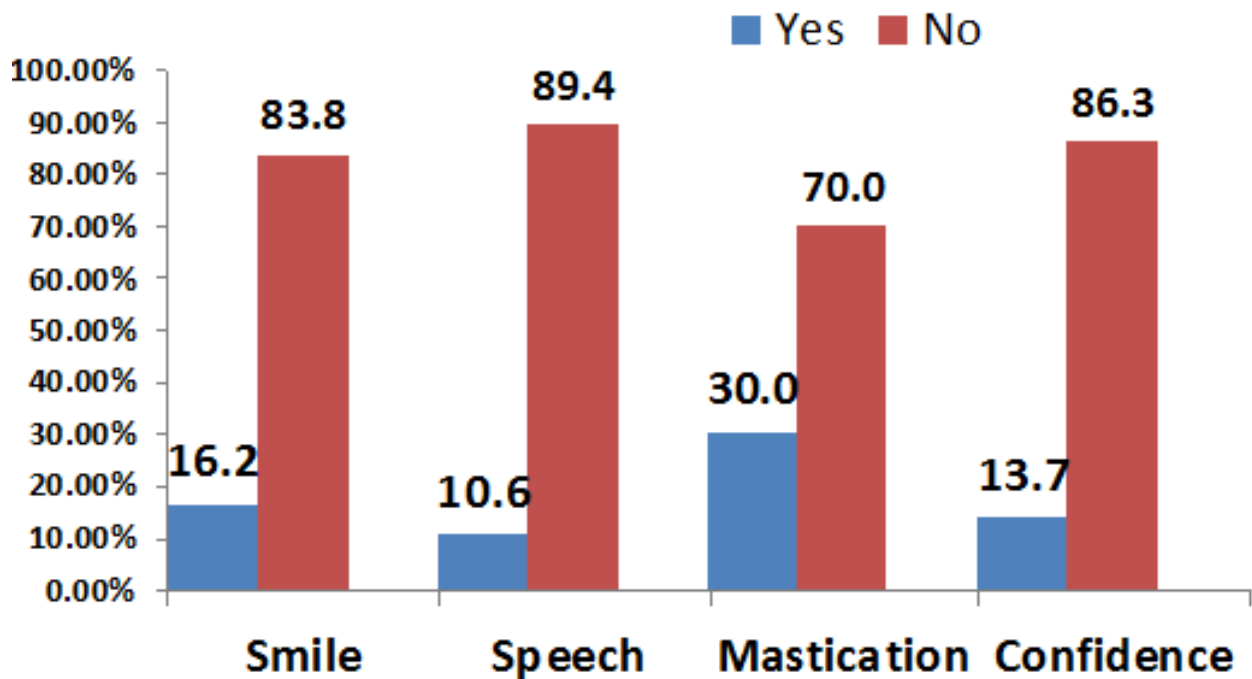
$\chi^2=13.06, p=0.01$

**Table 3**

Relationship of missing tooth positioning and acceptability of appearance

	Acceptability of Appearance		Total
	Not accepted	Accepted	
<b>Missing teeth</b>			
Upper anterior	39	3	42
Upper posterior	30	23	53
Lower anterior	6	15	21
Lower Posterior	36	20	56
Both Anterior	2	3	5
Both Posterior	18	9	27

$\chi^2=17.94, p=0.006$



**Fig 2**  
Impact of tooth loss on smile, speech, mastication and confidence.

**Table 4**

Anticipated difference of wearing a denture to replace missing tooth

	Acceptability of Appearance			Total
	YES	NO	DON'T KNOW	
Missing teeth				
Upper anterior	36	5	1	42
Upper posterior	26	21	6	53
Lower anterior	5	10	6	21
Lower Posterior	32	17	7	56
Both Anterior	1	3	1	5
Both Posterior	19	5	3	27
	$\chi^2=29.27, p<0.0036$			

## DISCUSSION

The questionnaire used in this study was based on an earlier qualitative study (Davis *et al*, 2000). This study was different from the earlier studies (Fiske *et al*, 1998; Davis *et al*, 2000) because it was carried out in the subject's natural environment and not in the hospital environment. This ensured that subjects' response to questions were unbiased without conforming to expected response, as in the case of when subject is seeking for treatment. In this study most of the subjects with unreplaced missing teeth were traders. It has been noted that individuals who have attained higher educational level and higher socioeconomic status tend to have greater financial resources enabling them to access dental health and give it more priority (Hayward *et al*, 1989; Kamal *et al*, 2007). Ignorance could also be a contributing factor (Akinboboye *et al*, 2014).

The location of the group of missing teeth into anterior and posterior region influences individual subjective need on replacement (Elias *et al*, 1988; Faiza & Salman; 2014). Our study revealed that the largest proportion of missing teeth were the lower posteriors. Previous studies documented that the highest tooth mortality involved the lower posterior teeth (Meskin *et al*, 1988; Oginni, 2005) and the lower posteriors were the least replaced amongst individual with unreplaced missing teeth (Elias *et al*, 1988). Our finding further emphasizes this. Majority of those with non-replaced missing teeth were those having upper or lower posteriors missing.

In our study, most subjects with missing upper anterior did not accept their appearance following the loss but had anticipation that wearing a denture would make a difference. Elias *et al* (1998), Ehikhamenor *et al* (2010), Olushile and Esan (2002) are some of the previous studies reporting that aesthetics as a reason for anterior teeth replacement. Our subjects might not accept their appearance after tooth loss because

aesthetics will have been compromised. This can further be supported from their response to anticipated effect of wearing dentures. It is surprising to note that despite the unacceptability and the anticipated dentures making a difference, the missing teeth were not replaced. A previous study done amongst young Nigerian adults note a high prosthetic unmet needs which was attributed to factors such as negative attitude to prosthetic treatment, ignorance and poverty (Akinboboye, 2014).

In our study, tooth loss did not impact on the confidence of more than half of our subjects. This was similar to the finding of Brennan *et al*. (2008). In Africa, losing teeth is still seen by many as a natural consequence of ageing (Varenne *et al*, 2004) and might have masked the impact of tooth loss on the confidence of these individuals with unrestored missing teeth in this study. Furthermore, their missing teeth also did not affect the confidence of those who were widowed/divorced. The reason for this could be that there is a great family attachment in this environment and loss/separation of their spouse might have overwhelmed the impact of tooth loss. However in some other parts of the world self-consciousness may be what individuals attach to very well.

Tooth loss has been reported to cause significant disability by impacting daily living activities<sup>3</sup> such as chewing food adequately, food selection, and speech<sup>4</sup>. In our study, the loss of teeth is perceived to have no effect on speech or smiling by most of our subjects but the effect on mastication is higher compared to other parameters. This could be as a result of the Nigerian diet that comprises of hard fiber and the loss of posterior teeth usually results in major chewing problem (Astrom *et al*, 2007) thereby restricting the subjects to soft diets. Major reason for not replacing lost teeth was as a result of indifferent attitude. This is in contrast to a study (Kamal *et al*, 2001), which reported that the reason for not replacing their teeth was financial. However, our finding was similar to Akeel (2003) who reported lack of awareness as the main reason while teeth were not replaced. Though majority (82%) of the population seen in Akeel (2003) study perceived a need for replacement. The percentage of subjects who perceived a need for replacement was 37.5% in Kamal's study (2007). Amjad *et al* (2014) stated that attitudes are acquired by social interactions. Most of our selected subjects from the community are traders who neither sought for dental care nor were motivated to replace their missing teeth. The major number of hours of their social interaction is mostly in the market area, which might explain their attitude towards tooth replacement.

In conclusion, our study serves, as baselines for further study on the impact of tooth loss on subjects who have not replace their lost teeth. Aesthetics is a strong determinant for replacement. There is little subjective

adverse emotional effect on confidence, smiling, and speech. There was however adverse effect on mastication. Indifferent attitude was the major reason for non-replacement of lost tooth.

We recommend that information about tooth loss and its replacement should be provided prior to extraction in form of verbal, written/poster or video communications and possibly conversation with someone who had had a similar experience.

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