

# **Pattern of Earlobe Attachment Among Igbo Ethnic Group of Nigeria**

## **Abstract**

**Background:** The earlobe is the fleshy lower region of the outer ear that lacks cartilage and is firmly attached to the side of the face. Every individual either has an attached or unattached pattern of earlobe attachments. The study aims to evaluate the prevalence pattern of earlobe attachment among the Igbo ethnic group of Nigeria.

**Methods:** 384 respondents (192 males and 192 females) were involved in the study and adopted an observational research design where multi-stage random sampling was used. A questionnaire was administered and retrieved. The data obtained were analyzed using IBM SPSS version 26 and chi-square was used as inferential statistics.

**Results:** 57.8% of the male population have an unattached earlobe pattern and 42.2% have attached earlobe patterns. In comparison, 51.6% of the female population had an attached pattern of the earlobe, whereas only 48.4% had an unattached pattern of the earlobe. The association between earlobe pattern and gender revealed no gender difference.

**Conclusion:** The unattached pattern of earlobe attachment is predominant among males and an attached pattern of the earlobe is predominant among females of the Igbo ethnic group of Nigeria.

**Keywords:** earlobe attachment, Nigeria, unattached pattern, Igbo, attached

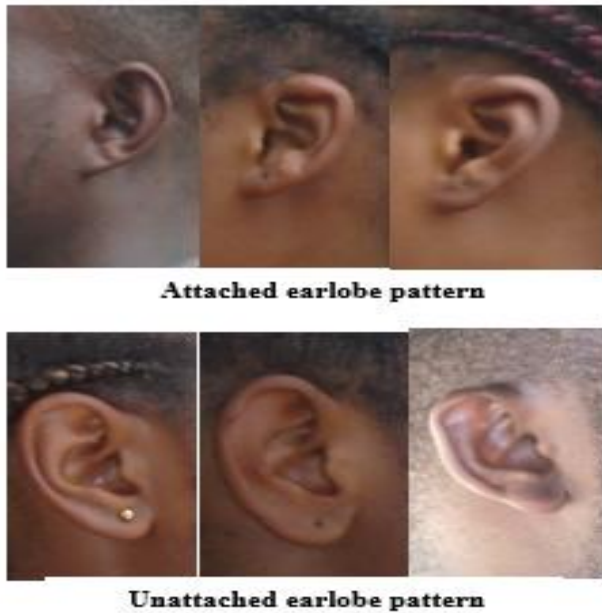
## **1.0 Introduction**

The human earlobe most often known as lobules auricular is the fleshy lower part of the outer ear that lacks cartilage and is firmly attached to the lateral side of the face [1], it has a large blood supply which in turn warms the ears and maintain balance [2]. The lobe is also composed of tough areolar and adipose connective tissue lacking the firmness and elasticity of the rest of the pinna [3]. Earlobe attachment differs in every individual, it is either attached earlobe where the lobe is attached directly to the lateral side of the face, or is unattached, where is freely unattached to the lateral side of the face [2].

The study of the patterns of earlobe attachment has provided a significant interest in genetics where the patterns are presented as an example of a simple “one gene-two alleles” Mendelian trait in humans [4]. In so many ways it has also been used in forensic science for the identification of individuals into race and ethnicity [5] and it has added to cultural relevance to the people [3]. Studies on the pattern of earlobe attachment abound in the Indian population but here in Nigeria, there are limited reference works. However, we need to evaluate the morphogenetic traits in our communities continuously.

Studies that have evaluated the pattern of earlobes among different populations reported; Ese et al., [6], in their study on the Pattern of earlobe attachment among the Ika ethnic, reported that the attached earlobe is more predominant than the free or unattached earlobe among the Ikas in Delta State, Nigeria. Francis and Okoseimiema, [7], reported that free (detached) earlobe was more frequently distributed than the attached ones among the Kalabari people, Paul et al., [3] revealed that there are more attached earlobes than detached ones in the Idoma population of Benue State, Oyubu et al., [8] reported that unattached early lobe is found more among Nigerian residing in southern regions and Ebeye et al., [9] also reported that unattached earlobe is more predominant among the Esan ethnic group of Nigeria

The variation of these patterns in different ethnicities in Nigeria has motivated the interest of this study to evaluate the prevalent pattern of earlobe attachment among the Igbo ethnic group of Nigeria.



**Figure 1 Patterns of earlobe attachment**

## **2.0 Materials and Methods**

### **2.1 Study design**

The study adopted a cross-sectional descriptive study design, qualitative data were generated using the observational research method, and only respondents within the age interval of 18-37 years were allowed to participate in the study. the respondents were drawn from Enugu, Abia, Anambra, Imo, and Ebonyi State, Owerri city of Imo state was used as the study Area. A multi-stage random sampling technique was adopted in the study to ensure that all respondents had an equal chance of being selected and the sample size was calculated using the qualitative sampling formula [10];

$$\text{Sample size} = \frac{Z_{1-\alpha/2}^2 p(1-p)}{d^2}$$

Where,

$Z_{1-\alpha/2}$  = Standard normal variate (at 5% type 1 error) = 1.96

p = expected proportion of respondents (50%)

d = absolute error = 0.05

$$\text{Sample Size} = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2} = 384.16$$

For this study, the sample size was rounded up to 384.

## **2.2 Study criteria**

The respondents for the study were recruited on the basis that he or she is within the age interval of 18-30 years, no surgery was performed on the ear, and both parents are of Igbo origin. The respondents that don't meet the inclusive criteria were excluded from the study.

## **2.3 Data collection**

A descriptive questionnaire was structured and administered to every respondent to gather information on the socio-demographic variables and patterns of earlobe attachment. Also, a personal interview was used to confirm that the respondent met the inclusive criteria. Afterward, the questionnaire was retrieved and documented.

## **2.4 Data analysis**

The data obtained from the study were subjected to statistical analysis using the International Business Machine of Statistical Package for Social Sciences (IBM SPSS version 26) and Chi-square was used as an inferential statistic. A probability less than 0.05 ( $p < 0.05$ ) was considered statistically significant.

## **3.0 Results**

The study comprised three hundred and eighty-four (384) respondents (192 males and 192 females) (figure 2). The study only recruited respondents within 18-37 years and the ages were categorized into classes of 18-21, 22-25, 26-29, 30-33, and 34-37. Figure 3, showed that age intervals of 18-21 were observed most (53.9%) and it was followed by age intervals of 22-25 (33.9%), 26-29 (6.5%), 34-37 (3.4%), and least was observed within age interval of 30-33 (2.3%).

Table 1, show the association of earlobe pattern among gender where 57.8% of the male population were observed to have an unattached earlobe pattern and only 42.2% had attached earlobe pattern. In comparison, for females, 51.6% of the female population had an attached pattern of the earlobe and only 48.4% were observed to have an unattached pattern of earlobe. The association of earlobe pattern and gender showed no gender difference.

#### 4.0 Discussion

The present study evaluates the association of earlobe patterns and gender among the Igbo ethnic group of Nigeria and the results were presented that the majority of the males had unattached patterns of earlobe (57.8%) while 51.6% of the females had attached earlobe patterns. The association showed no gender differences. The findings of this study agree with Munir et al., [11] study among the Quetta, Pakistan population that the predominant earlobe attachment pattern found in males was free and females were attached, they further reported that the patterns showed no gender differences. Though Ese et al., [6] study among the Ika ethnic group of Delta State, Nigeria disagrees with our study, that males have more attached earlobes compared to females, and their finding agrees with Oyubu et al., [9], that attached earlobe patterns was predominant in male, among Adult Nigerians residing in the Southern region. Though our findings have shown inconsistency in their study on the prevalence pattern among gender they also report that earlobe patterns showed no gender differences and this is in accordance with the present study. Umoyen et al., [14] and Ese et al., [6] also reported no gender difference among patterns. Our study agreed with the finding of Paul et al., [3] among the Idoma people of Benue State of Nigeria, and the study by Yekeem et al., [12] among Ondo State of Nigeria stated that attached earlobe was predominant among the females, they further reported that their findings showed no gender differences with the patterns of earlobe attachment. In 2022, Francis and Okoseimiema [7], conducted a similar study and reported that the unattached earlobe pattern was predominant among the males also agreed with Ebeye et al., [8], the finding of our study agreed with these findings though Fakorode et al., [13] study among Nigeria has reported that in Hausa, Igbo, and Yoruba ethnic group of Nigeria, the unattached patterns were predominant among males and females. Their findings on the female population are in contrast with the present study. However, the present study agreed with their findings on the male population and also studies by Ese et al., [6], Francis and Okoseimiema, [7], Yekeem et al., [12], Fakorede et al., Umoyen et al., [14], [13], Ebeye et al., [8] have all shown there the association of earlobe patterns of attachments had no gender difference.

The above-discussed study has shown some similarities and differences in earlobe pattern of attachment among the Igbo ethnic group of Nigeria and these differences could be attributed to ethnicity, race, and environmental factors.

## **5.0 Conclusion**

The study has shown that the unattached pattern of earlobe attachment is predominant among the males and the attached is predominant among the females. The association of the patterns of earlobe attachment has further shown no gender differences.

## **Consent**

The study adopted the university standard, respondents were issued written consent to participate in the study and it was retrieved and preserved by the author(s)

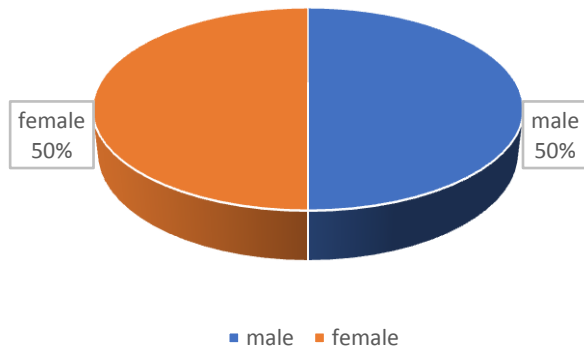
## **Ethical Approval**

Ethical approval for this study was granted by the faculty Research Committee of Basic Medical Sciences, University of Port Harcourt, Nigeria.

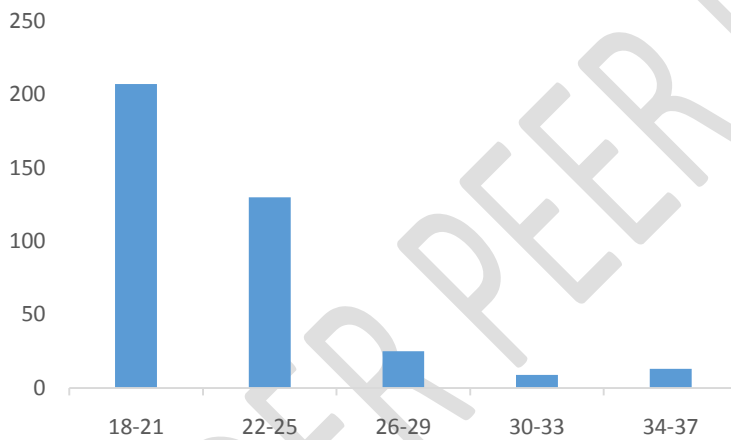
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**Figure 2. Gender**



**Figure 3 The Age range**

**Table 1, Association of Earlobe Patterns among Gender**

		attached	unattached	total	$X^2$	df	p-value	Inference
sex	male	81 (42.2%)	111 (57.8%)	192 (100%)	3.39	1	0.07	NS
	female	99 (51.6%)	93 (48.4%)	192 (100%)				

*NS= non-significant,  $X^2$ = chi-square, df=degree of freedom,  $p < 0.5$*

UNDER PEER REVIEW