



# Pattern of Earlobe Attachment among Igbo Ethnic Group of Nigeria

Nicholas Asiwe <sup>a\*</sup>, Faustina Chiamaka Irozulike <sup>a</sup>,  
Patrick Leo Filima <sup>a</sup>, Masterson Sampson Wedeh <sup>a</sup>,  
and Bariereyiga Nadum Yirate <sup>a</sup>

<sup>a</sup> Department of Anatomy, Faculty of Basic Medical Sciences, University of Port Harcourt, Nigeria.

## Authors' contributions

This work was carried out in collaboration among all authors. Author NA conceptualized the manuscript, Authors FCI, PLF and BNY collected the data and analyzed the study. Author NA wrote the manuscript and reviewed and edited by Authors MSW, PLF and NA. All authors read and approved the final manuscript.

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## 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.

\*Corresponding author: Email: asiwenicholas@gmail.com;

**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. 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 to remain current and relevant.

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



**Fig. 1 Patterns of earlobe attachment**

## 2. 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 and 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 18-37 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. RESULTS

The study comprised three hundred and eighty-four (384) respondents (192 males and 192 females) (Fig. 2). The study only recruited respondents between 18-37 years and the age were categorized into classes of 18-21, 22-25, 26-29, 30-33, and 34-37. Fig. 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%).

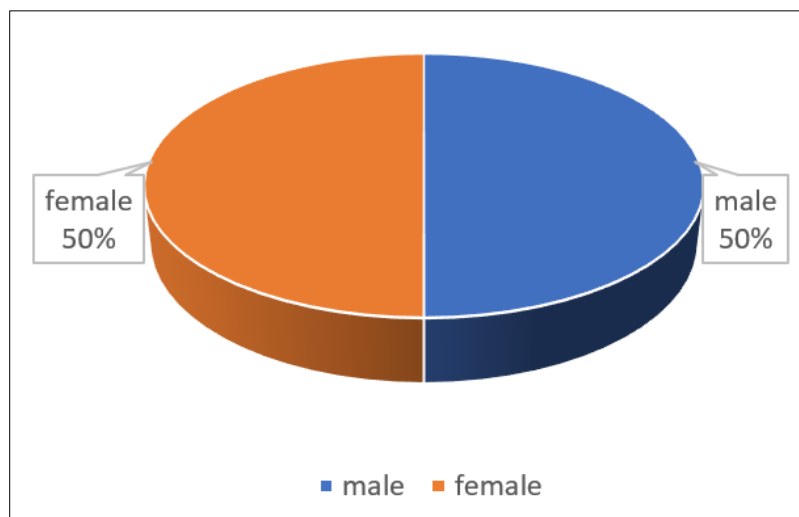
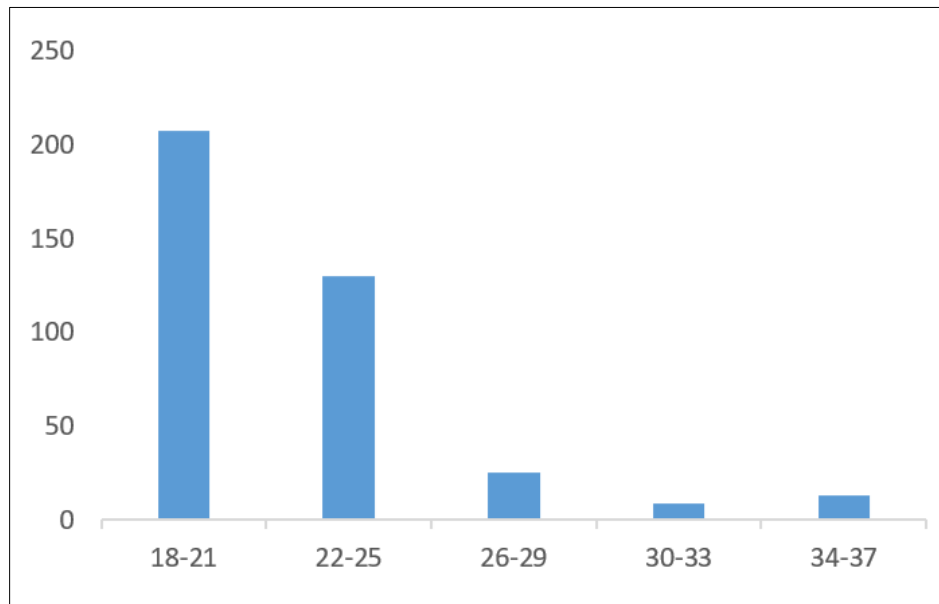


Fig. 2. Gender



**Fig. 3. The age range**

**Table 1. Association of earlobe patterns among gender**

		Attached	unattached	Total	X <sup>2</sup>	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<sup>2</sup>= chi-square, df=degree of freedom, p<0.5

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 an 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. 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. 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 findings are in line 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 genders they also report that earlobe patterns showed no gender differences and this is following the present study. Umoyen et al. [12] 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. [13] 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. [14] 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. [13], Fakorede et al. Umoyen et al. [12], [13], Ebeye et al. [8] have all shown that the association of earlobe patterns of attachment 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. 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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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Potu BK, Srungavarapu GC, Pulakunta T. Morphometric evaluation of the infraorbital foramen in human dry skulls of South

- Indian population. *Ital. J. Anat. Embryol.* 2019;124(3):382-91.
2. Ordu KS, Didia BC, Egbunefu N. Inheritance pattern of earlobe attachment amongst Nigerians. *Greener Journal of Human Physiology and Anatomy.* 2014; 2(1):1-7.
3. Paul JN, Ochai J, Dimkpa GC, Ogba AA, Ohanenye CA. Pattern of Earlobes Attachment among the Idoma People of Benue State, Nigeria. *Sch J App Med Sci.* 2022;12:2419-23.
4. Shaffer JR, Li J, Lee MK, Roosenboom J, Orlova E, Adhikari K, Agee M, Alipanahi B, Auton A, Bell RK, Bryc K. Multiethnic GWAS reveals polygenic architecture of earlobe attachment. *The American Journal of Human Genetics.* 2017;101(6):913-24.
5. Scheuer L. Application of osteology to forensic medicine. *Clinical Anatomy: The Official Journal of the American Association of Clinical Anatomists and the British Association of Clinical Anatomists.* 2002;15(4):297-312.
6. Ese A, Emmanuel ON, Charity I, Enoch O. Pattern of earlobe attachment among the Ika ethnic group in Delta State, Nigeria. *GSC Advanced Research and Reviews.* 2021;7(3):054-7.
7. Francis GI, Okoseimiema SC. Distribution of Earlobe Attachment among Kalabari People of Southern Nigeria. *Sch J App Med Sci.* 2022;11:1884-6.
8. Ebeye OA, Chris-Ozoko LE, Ogeneovo P, Onoriode A. A study of some morphogenetic traits among the Esan ethnic group of Nigeria. *East African Medical Journal.* 2014;91(11):420-2.
9. Oyubu EA, Oyakhire MO, Amasiatu vc. Morphometric evaluation of the external ear in relation to attachment pattern: a study of adult Nigerians resident in the southern region. *European Journal of Biomedical.* 2019;6(6):65-72.
10. Asiwe N, Irozulike FC, Wariboko LI, Adheke OM. Health Assessment of the Ikwere and Okrika Ethnic Group of Rivers State, Nigeria: Using Body Mass Index and Waist-to-Hip Ratio. *Journal of Complementary and Alternative Medical Research.* 2023;23(2):27-35.
11. Munir S, Sadeeqa A, Nergis B, Tariq N, Sajjad N. Assessment of morphogenetic inherited traits; earlobe attachment, bent little finger and hitchhiker's thumb in Quetta, Pakistan. *world Journal of Zoology.* 2015;10(4):252-5.

12. Umoyen AJ, Akpan NG, Abu GI, Thomas TL, Uyokeyi U. The inheritance pattern of some human morphogenetic and serological traits among two Nigerian ethnic groups in Akwa-Ibom state. *Scholars International Journal of Anatomy and Physiology*. 2021;4(6):65-74.
13. Yekeen MO, Umar SI, Ahmad AM. Study of Serological and Morphogenetic Variability among Students in Federal Polytechnic, Ile-Oluji, Ondo State. *Sch Int J Anat Physiol*. 2023;6(7):105-10.
14. Fakorede ST, Adekoya KO, Fasakin TP, Odufisan JO, Oboh B. Ear morphology and morphometry as potential forensic tools for identification of the Hausa, Igbo, and Yoruba populations of Nigeria. *Bulletin of the National Research Centre*. 2021;45(1): 1-9.

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