

Anthropometric Study of the Cephalic and Nasal Indices of Ogu and Ikwerre People of Nigeria

E.A. Osunwoke, G.S. Oladipo, K.S. Ordu and C.W. Paul

Department of Anatomy, Faculty of Basic Medical Science, College of Health Sciences,
University of Port Harcourt, Nigeria

Abstract: The aim of this study is to provide a baseline data of cephalic and nasal index of Ogu and Ikwerre people of southern Nigeria. Cephalic index is used to measure the size of the head while nasal index is used to measure the size of the nose. A total number of one thousand subjects (1000) comprising five hundred (500) from each tribe were selected for this study. To obtain the nasal index, the nasal length was measured from the nasion to the point where the nasal septum merges with the skin of the upper lip (nasospinale), while the nasal breadth was measured from ala to ala using a vernier caliper. For the cephalic index to be obtained, the head length was measured from the glabella to the external occipital protuberance (opistocranium), while the head breadth was measured from the transverse diameter of the head (biparietal diameter) using a spreading caliper. The results obtained showed that the Ikwerre males and females have a mean nasal index of 93.8 and 95.8 and a cephalic index of 74.9 and 74.8, respectively while the Ogu males and females have a mean nasal index of 95.8 and 87.34 and a cephalic index of 74.83 and 74.8, There was a significant difference in the nasal index of both Ikwerre and Ogu males and females ($p < 0.05$), while the cephalic index showed no significant difference ($p > 0.05$). This study has shown that the Ikwerre and Ogu people are both platyrrhines and their cephalic index indicated that they are dolicocephalic.

Key words: Cephalic, Ikwerre, Nasal index, Nigeria, Ogu

INTRODUCTION

The Ikwerre and Ogu people are indigenous people of the South-Southern part of Nigeria in West Africa. Cephalic and nasal index are very useful anthropologically to find out racial differences and medical management (Shah and Jadhav, 2004; Porter *et al.*, 2003; Ochi and Ohashi, 1983). Cephalic index is used to measure the size of the head which is done by determining the ratio of the maximum head breadth to the maximum head length (Kelly *et al.*, 1999). There are three classifications of cephalic index which can be used to describe the human head; these include dolicocephaly, mesocephaly and brachycephaly (Golalipour *et al.*, 2005). Nasal index measurement can be utilized in the analysis and classification of fossil remains as well as the study of living populations (Alex *et al.*, 1996). Studies have shown that the Negroid race mainly of African descent have the platyrrhine nose type (Carleton, 1989).

Fawehinmi *et al.* (2008) revealed that the cephalic index of normal growing males and females in Port Harcourt (79.8 ± 0.37 and 79.9 ± 3.9 , respectively) showed a significant difference with males having a higher value. Their head shape was classified as mesocephalic. Oladipo and Olotu, (2006) conducted a study on the cephalic index of Ijaws and Igbos of Nigeria. They reported that the Ijaws

and Igbos had cephalic indices of 79.96 and 78.00 respectively. Report on the Ogonis by Oladipo *et al.* (2009), showed that the Ogonis had a cephalic index of 111.18 and 75.09 for males and females respectively. In another study by Oladipo *et al.* (2009) on the cephalic indices of Nigerian Ibibios and Efiks, results showed that the mean values of cephalic indices of Efik males and females were 73.16 and 73.80, respectively while those of Ibibio males and females were 73.48 and 73.80, respectively. There was no sexual dimorphism. Bhargav and Kher (1961) reported the mean cephalic index of 79.80 for Barelias race of India while Shah and Jadhav (2004) reported a cephalic index of 80.81 for Gujarat race of India.

Oladipo *et al.* (2007) conducted a study on the morphometric analysis of the nasal parameters of Igbo, Ijaw and Yoruba ethnic groups of Southern Nigeria. The results obtained showed that an average Igbo had a mean nasal index of 94.1 ± 0.37 , Yoruba 89.2 ± 0.30 and Ijaw 96.37 ± 1.06 . Thus the Ijaws had a significant higher nasal index ($p < 0.05$). Fawehinmi *et al.* (2008) reported a mean nasal index of 98.5 ± 0.93 and 94.1 ± 1.18 for male and females of Kalabari ethnic group of Nigeria. The Somalia people in East Africa have a nasal index similar to that of European Caucasoid of 69.90 or less, which is of leptorrhine nose type (Porter *et al.*, 2003; Carleton, 1989).

Table 1: Table showing the Mean±SD of the cephalic and nasal indices of Ogu and Ikwerre ethnic groups

Parameters	Ogu Males	Ogu Females	Ikwerre Males	Ikwerre Females
Mean cephalic index	74.8±0.37	74.8±4.68	74.9±0.80	74.6±0.53
Mean nasal index	95.8±0.62	87.4±3.94	93.8±0.86	85.5±3.43

SD: standard deviation (p<0.05)

The nasal index of African-American women is 79.70 Bantu speaking negroes and the bushmen of Africa as well as the Australoids of Australia are platyrrhine having a broad nose and a nasal index of 85.00 or more (Mulchand, 2004).

This study was carried out to provide a baseline data of cephalic and nasal index for comparison between the two ethnic groups which could be of immense importance in forensic and anthropological studies.

MATERIALS AND METHODS

A total number of 1000 subjects comprising 500 Ogu people (250 males and 250 females) and 500 (250 males and 250 females) Ikwerre males and females with ages ranging from 12-22 years were recruited for this study. The subjects were recruited at random on the basis of the absence of any pre-existing trauma or surgery from Ogu community secondary school, Akpor grammar school, Chuks comprehensive secondary school and market places in both Ogu and Ikwerre communities. The subjects were purely of either Ogu or Ikwerre ethnic group by both parents and grand parents. This study was conducted in Rivers state, Nigeria in 2009.

Using the spreading caliper, the head length was measured from the glabella to the external occipital protuberance.

The head breadth was measured as the greater transverse diameter (biparietal diameter). Measurements were taken with the subjects sitting on a chair in a relaxed condition and head in anatomical position. Measurements of the nasal height were obtained from the nasion to the nasospinale. The nasal breadth (maximum breadth of the nose) was measured at right angle to the nasal height from ala to ala. Measurements were taken with the subject standing in an upright position with the face straight and facial muscles relaxed. The sliding caliper was handled with utmost care to avoid any form of injury to the nose or face. Cephalic index was calculated as head breadth/head length x 100 while the nasal index was calculated as nasal breadth/nasal height x 100.

The data obtained was subjected to statistical analysis using student's z-test.

RESULTS AND DISCUSSION

Table 1 showing the Mean±SD of cephalic and nasal indices of Ogu and Ikwerre ethnic groups. The result showed that there was no significant difference between the cephalic of the indices of both males and females in the two ethnic groups. The nasal

index of Ogu males and females were higher than that of the Ikwerre males and females respectively and the difference was significant (p<0.05).

The present study has shown that the cephalic indices of both the Ogu and Ikwerre males and females exhibited no sex dimorphism. The nasal indices of the Ogu males and females were higher than that of the Ikwerre males and females. There was sexual dimorphism. The values obtained for cephalic index of males and females in this study was lower than that obtained by Fawehinmi *et al.*, (2008), and sexual dimorphism was reported, Oladipo and Olotu, (2006) on the cephalic indices of Ijaws and Igbos of Nigeria, Oladipo *et al.* (2009) on the cephalic indices of Ogonis of Nigeria, Bhargav and Kher (1961) on the cephalic index of Barelias race of India, Shah and Jadhav (2004) on the cephalic index of Gujarat race of India. The cephalic index the Ogus and Ikwerres from this present study was higher than that obtained by Oladipo *et al.* (2009) on Ibibio and Efik males and females of Nigeria. The mean cephalic indices of the two ethnic groups have shown that they are dolicocephalic.

Various studies have been carried out to determine the racial and ethnic differences in nasal index amongst different populations of the world. The European Caucasoids are leptorrhine (having long narrow nose). The Bantu-speaking Negroes, the Bushmen of Africa and the Australoids of Australia are platyrrhine (having broad nose). The nasal index of African-American women indicates that they are mesorrhine (having medium nose) The nasal index obtained in this study has revealed that the value for the Ogu males was higher than that obtained by Oladipo *et al.* (2007) on average Igbos, (94.1±0.37) and Yorubas (89.2±0.30) but lower than that obtained for the Ijaws (96.37±1.06). The value for the Igbos and Ijaws was higher than that obtained for the Ikwerres in this study. But the value for the Ikwerres was higher than that of the Yorubas. The mean nasal index obtained by Fawehinmi *et al.* (2008) for Kalabari males (98.5±0.93) and females (94.1±1.18) was higher than that gotten in this study for both the Ogu and the Ikwerre ethnic groups. The results of this study agrees with the findings of Mulchand, (2004) on the nasal index of the African population which he gave as 85.00 and above and Oladipo *et al.* (2007) on the nasal index of major ethnic groups in Southern Nigeria which he gave as 89.00-100.00 described as platyrrhine. Sexual dimorphism was observed in the nasal index of the ethnic groups studied with the males having significantly higher values (p<0.05). However, the ethnic groups still falls within the platyrrhine nose type expected of an African.

CONCLUSION

Our findings in the present study of the Ogu and Ikwerre ethnic groups have demonstrated similar head and nose type. The groups have shown values that are different from other ethnic groups in Nigeria that have been previously studied. Slight differences exist between the Ogu and Ikwerre ethnic groups. The nasal and cephalic index of Ogu and Ikwerre ethnic groups have been determined and confirmed.

This study should be of importance in forensic science and clinical anthropometry and could be subjected to further investigation using larger sample.

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