

ANTHROPOMETRIC COMPARISON OF CEPHALIC INDICES BETWEEN THE IJAW AND IGBO TRIBES

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ABSTRACT

Cephalic index is an important parameter for classifying populations. In the present study, 200 students with age range of 17 to 25 years of Ijaw and Igbo origin from some Nigerian higher institutions of learning were measured for head length and head breadth and cephalic index was worked out. One hundred comprising 63 males and 37 females were of Ijaw tribe 53 males and 47 females were of Igbo tribe. The result obtained showed that the Ijaw males had a mean cephalic index (CI) of 80.98, Ijaw females 78.24, Igbo males 79.04 and Igbo females 76.83. Thus Ijaw males belong to brachycephalic group, while Ijaw females, Igbo males and Igbo females are mesocephalic. On the average, the mean C.I. in the two tribes were < 80 but > 75 which puts them in the mesocephalic or medium headed population. However, analysis using the student's t- test indicated there was no significant difference between the two tribes ($p > 0.05$). The result of this study will be of importance in forensic medicine, anthropology and in genetics.

KEYWORDS: cephalic index, tribes and anthropometry.

INTRODUCTION

Measurements are important tools for comparisons. In order to achieve a more objective racial assessment, metrical studies have long been practiced. Internationally accepted techniques of craniometry/cephalometry have promoted a large number of comparable ethnic data for males and to a lesser extent, females (Berry, 1967).

Cephalic index is very useful anthropologically to find out racial differences (Shah and Jadhav, 2004). It can also be utilized to find out sexual differences. (Williams et al 1995). Comparison of changes between parent, offspring and siblings can give a clue to genetic transmission of inherited characters (Shah and Jadhav, 2004). Standardized cephalometric records enable diagnostic comparison between patients and the normal population (Rabey, 1971). Thus Stolovitsky and Todd (1990) reported that dolichocephalic persons have otitis media less often than brachycephalic persons. Cohen and Kreiorg (1994) also reported that individuals with Aperts syndrome are hyperbrachycephalic.

A large number of reports exist on the cephalic index of Caucasians. Kasai et al (1993) reported cephalic index of Japanese and Australian populations. Basu (1963) reported mean cephalic index of 79.50 for 100 subjects of Kvangaja race.

Bhargav and Kher (1960) reported mean cephalic index of 76.98 for 100 subjects of Bhils race studied. Bhargav and Kher (1961) and Shah et al (2004) reported mean cephalic indices of 79.80 and 80.81 for Barelilas and Gujarat races of Indian respectively.

Few reports however exist on the cephalic index of adult Africans. The studies on Africans have been mostly on fetuses (Obikili et al, 2004). Okupe et al (1984) compared the fetal cephalic indices of Nigerians and Caucasians with Nigerians showing significantly higher value. Tanner (1963) studied cephalic index in Igbos. Ojikutu et al (1980) studied the cranial index of Nigerians using autopsy cases. Obikili et al (2004) also studied the cephalic index of Nigerians using living subjects. The present study was aimed at providing anthropological data of cephalic index for comparison between Ijaw and Igbo tribes of Nigeria.

MATERIALS AND METHODS

In the present study, 200 students were selected from Bayelsa State College of Art and Science, Abia State University, Rivers State University of Science and technology and university of Port Harcourt. Students were selected because of easy availability. One hundred (100) of the subjects comprising 63 males and 37 females were of Ijaw origin by both parents and grand parents. The remaining 100 subjects comprising 53 males and 47 females were of Igbo origin by both parents and grand parents. The of the age of the students ranged from 17-25 years. Subjects with craniofacial trauma and obstructive hairstyles were not used. The method used for assessing the cephalic index is Hrdlicka's method (1952). The head length (greatest anteroposterior diameter) was measured with spreading caliper, from glabella toinion. The head breadth was measured as the maximum transverse diameter between the two fixed points over the parietal bones. All measurements were taken in centimetres and to an accuracy of 0.10. All measurements were taken with the subject sitting on a chair, in a relaxed mood and the head in the anatomical position. Cephalic index was calculated as biparietal diameter/ length of cranium X100. The data were subjected to statistical analysis using an analysis of variance (ANOVA).

RESULTS

Statistical analysis using an analysis of variance (ANOVA) was carried out on data collected. The results are presented in tabular form. The mean cephalic indices in Ijaw and Igbo males were found to 80.98 and 79.04 respectively. In Ijaw and Igbo females, the cephalic indices were found to be 78.24 and 76.93 respectively. For the total population (males and females), Ijaw tribe has a mean cephalic index of 79.96 while Igbo tribe has a cephalic index of 78.0. Thus Ijaw males have the highest cephalic index (80.98) while Igbo females have the lowest mean cephalic index of (76.93). The differences between the two ethnic groups were however not statistically significant ($p > 0.05$).

Table 1: Cephalic index in Ijaw and Igbo tribes

Variables	Males		Females		Total (male & female)	
	Ijaw	Igbo	Ijaw	Igbo	Ijaw	Igbo
Mean CI	80.98	79.04	78.04	76.93	79.96	78.0
Standard error	0.77	0.79	1.04	0.72	0.61	0.54
Sample size	63	53	37	47	100	100

$P > 0.05$.

C.I. = cephalic index

DISCUSSION

Williams et al (1995) recorded a racial variation in the cranium. The mean values of cephalic index of males for Ijaws and Igbos in our study were 80.98 and 79.04 respectively while the values for Ijaw and Igbo females were 78.04 and 76.93 respectively. Higher mean values of cephalic index in females were reported by Froehlich (1970), Obikili et al (2004), Kasai et al (1993), Sato et al (1992), Ojikutu (1980) and Michelson (1943). On the opposite, Jansen (1984) reported a higher cephalic index in males than females. The results of the present study were similar to that of Jansen (1984) but at variance with the former authors. Our calculated values for cephalic index for both males and females of Ijaw and Igbo tribes were slightly different from those of Ojikutu et al (1980), Tanner (1963) and Obikili et al (2004).

The cephalic index of Igbo and Ijaw people (present study) was at variance with those of Australian aboriginal. (Kasai et al 1993), Kenyans (Jansen 1984). The mean cephalic indices of 80.98 and 78.04 for male and female Ijaw people respectively put Ijaw males in brachycephalic group and Ijaw females in mesocephalic. The mean cephalic indices of 79.04 and 76.93 for male and female Igbo people on the other hand put them in mesocephalic group.

CONCLUSION

Variations in cephalic index between and within populations have been attributed to a complex interactions between genetic and environmental factors (Kasai et al, 1993). Thus the Ijaw and Igbo people who incidentally belong to the same geopolitical region of Nigeria appears to have common origin as no significant difference was found between the cephalic index of the two ethnic groups. This study is expected to be of immense importance to anthropologists and serve as basis of comparison for future studies on various ethnic group groups in Nigeria.

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