Morphometric Study of the Canthal Parameters among the Isoko and Urhobo Ethnic Groups in Delta State, Nigeria

Okoro Ogheneyebrorue Godswill[1*], Onoriode Andrew Udi[1], Igben Onoriode Vincent_Junior[2], Enye Linus Anderson[3]

[1]Department of Human Anatomy, Achiever's University, Owo, Ondo State, Nigeria.
[2]Department of Human Anatomy and Cell Biology, Delta State University, Abraka, Delta State, Nigeria.
[3]Department of Human Anatomy, Afe Babalola University, Ado-Ekiti, Nigeria.

ABSTRACT

Clinician geneticists, surgical reconstructive specialists, and anthropologists of the skull and face depend heavily on canthal measures, which vary from person to person. The aim of this research is to compare the canthal measurements of two different ethnic groups in Nigeria. The study's sample consisted of people living in the Nigerian cities of Udu and Oleh, ranging in age from 18 to 45. The inner and outer canthal distances, or ICD and OCD, were expressed in millimeters. The standard formula was used to calculate the Canthal Index (CI). The data were statistically examined using the independent sample t-test. In statistics, a p-value of 0.05 was used to assess significance. The results demonstrated the sexual dimorphism of the Urhobo ethnic group in terms of Outer Canthal Distance (OCD), with males having a significantly higher mean value and Isoko males having a higher insignificant mean value than Isoko females. Males had slightly higher mean ICDs than females in both ethnic groupings. There was no statistically significant difference between the OCD and ICD scores of Urhobo males and females compared to Isoko males and females despite Urhobo males and females having higher mean values. While Isoko males had greater insignificant CI values than Isoko females, Urhobo females had higher insignificant CI values overall. Urhobo and Isoko respondents' mean CI differences were statistically different.

Keywords: Anthropometric, Canthal Distance, Inner Canthal Distance (ICD), Outer Canthal Distance (OCD).

Address of Corresponding Author
Okoro Ogheneyebrorue Godswill; Department of Human Anatomy, Achiever's University, Owo, Ondo State, Nigeria.
E-mail: thomasgodswill23@gmail.com
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Introduction

The physical diversity of people has always captivated scientists. Variations in different physical attributes within and between populations have long piqued the interest of anthropologists. Golalipour et al. claim that the human body's dimensions are influenced by ecological, biological, regional, racial, gender, and age factors.[1] Anthropological research has been done on age, gender, and racial groups in specific geographic areas. Measuring the soft tissues of the face is important to meet aesthetic standards[2], but accurate measurements are also required for the estimation of several systemic syndromes, craniofacial abnormalities, and surgical treatments for post-traumatic telocanthus.[3-5]

Normal canthal levels can serve as a reference for disease diagnosis and treatment planning for craniofacial abnormalities. Therefore, the aesthetic results of clinical therapy are influenced by the anatomic structures that exist. An increasingly sought-after tool for determining the health status of children in communities is the physical assessment of children's growth and development from different ethnic groups within a nation.[6] Studies on canthal measures in relation to the Udu and Oleh ethnic groups are scarce in

Nigeria. In order to ascertain the typical values for medial and lateral canthal distances, Saheeb et al. tested 468 male and 408 female Nigerian children between the ages of 3 and 18.[7] This study tends to compare the canthal measurements of subjects living in Udu and Oleh, Delta State, Nigeria.

Materials and Methods

The study's participants were Urhobo and Isoko individuals between the ages of 18 and 45 who resided in Udu and Oleh, Delta State, Nigeria. The study used a total of 359 subjects, comprising 160 Isoko (100 males and 60 females) and 199 Urhobo (97 males and 102 females). The process was explained to the subjects. For gathering data, a digital sliding vernier caliper was employed. In the Frankfurt plain, each subject was instructed to comfortably sit in a chair.[9] The data were statistically examined using the independent sample t-test. In statistics, a p-value of 0.05 was used to assess significance.

Results

In both ethnic groups, mean ICD and OCD scores were higher in males than in females. Table 1 shows that there was a statistically significant sexual difference in the mean OCD measurements of 4.84±2.02 mm and 4.67±2.01 mm for Urhobo males and females, respectively. On the other hand, there was a statistically insignificant difference in the mean OCD measurements of 35.25±2.66 mm and 34.11±2.54 mm for males and females of Isoko. There was no noticeable sexual dimorphism in Urhobo males or females, whose mean ICD was 9.72±2.50 and 9.23±2.15, respectively, and Isoko males and females, whose mean ICD was 98.33±5.33 and 62.35±5.50, respectively.

Ethnicity	Parameters	Gender	Mean±SD (mm)	P-value
Urhobo	ICD	Male	9.72±2.50	0.063
		Female	9.23±2.15	
	OCD	Male	4.48±2.02	0.145
		Female	4.67±2.01	
Isoko	ICD	Male	98.33±5.33	0.04
		Female	62.35±5.50	
	OCD	Male	35.25±2.66	0.235
		Female	34.11±2.54	

Table 1: T-test for sexual dimorphism in the ethnic group's (inner and outer canthal distances).

Discussion

The higher OCD and ICD values in this study compared to Oladipo et al.'s findings in Ikwere schoolchildren may be due to genetic or environmental differences between the two study groups.[10] According to earlier research by Ijaw, Urhobo, and Itsekiri, men have higher average values for physical characteristics than women. This is consistent with the higher mean values for OCD and ICD that males had compared to females. The finding from this present study also agrees with a study by Anibor et al.[11] among the Isokos of Delta State.

Furthermore, there was a significant difference (p 0.05) between the mean values for men and women. The disparity between our investigation's results and their own study, however, might be due to the age differences and other environmental factors between the two study groups.

Oladipo et al. found that among Igbo and Ijaw people in southern Nigeria, there was a non-significant sexual difference in the CI of both ethnic groups.[7] This indicates that even though ethnic groups live in the same environment, their canthal indices differ.

Conclusion

The canthal parameters of the study's ethnic groups differed significantly, indicating differences in their genetic makeup and origins. Additionally, Thus, the findings of this study offer data on the canthal distances of Urhobo and Isoko subjects in the cities of Udu and Oleh. This information may be helpful to researchers, anatomists, plastic surgeons, forensic scientists, and the general public.

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