

The Facial and Nasal Height of the Ijaw Ethnic Group in Delta State of Nigeria

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ABSTRACT

This is a cross sectional study that involved 400 Ijaw subjects aged between 18 and 30 years. This study was carried out to provide data on facial and nasal height amongst adult Ijaws in Delta State. The mean facial height of adult Ijaw male and female subjects are 11.58cm and 10.86cm, respectively. The mean nasal height of adult Ijaw male and female subjects are 4.51cm and 4.21cm respectively. The results of this study indicates sexual dimorphism with males having higher facial and nasal height than the females ($P < 0.05$).

Key words: Facial height, Nasal height, Sexual dimorphism, Forensic Science, Nigeria.

INTRODUCTION

Studies on craniofacial relations and variations in man have long been used to differentiate various groups in physical anthropology. Morphological features of different races and ethnic groups are not randomly distributed but appear in geographical clusters [1]. Anthropologists have always had interest in studying variations in morphological characters [2]. Anthropometry is a series of systematized measuring techniques that expresses quantitatively the dimensions of the human body and skeleton [3]. Anthropometric measurement is a means for studying variations in human population and these variations occur in different parts of the body.

The face, comprising of pair of eyes and ears, nostrils and the mouth is described as the anterior aspect of the head from the forehead to the chin and from one ear to the other [4]. The basic shape of the face is determined by the underlying bones, buccal fat pads in the cheeks and the facial muscles. The nose is the part of the respiratory tract superior to the hard palate and contains the peripheral organ of smell. It includes the external nose and nasal cavity, which is divided into right and left cavities by the nasal septum.

Jahanshahi et al., carried out a study on the effect of ethnicity on facial anthropometry in Northern Iran. The length and width of faces were determined and the shapes of the faces in the ethnic groups of Fars and Turkman in both sexes were compared [5]. A study was done on facial height among individuals of age between 3 and 18 years old from the communities of Brahmin, Chhetri, Rai, and Limbu in the Sunsari district of Nepal [6]. A study looked into facial height comparison in young white and black Brazillian subjects with normal occlusion [7]. A study was conducted on the anthropometric facial analysis of African-American women. The result showed that the African

women special head height was shorter, compared to that of the American women [8]. A research was done involving 252 adolescent males from North India to determine stature from cephalofacial dimensions [9].

A study considered adult males and females of Igbo ethnic group in Nigeria to find out the facial and nasal length. There was sexual dimorphism, with significantly higher values ($P < 0.05$) of all parameters in males compared to females [10]. Research considered vertical facial height and proportions of faces of Hausas [11]. A study was undertaken to document the various craniofacial forms of newborns of Maiduguri metropolis in Nigeria [12]. Akpa et al., did a morphometric study of the nasal parameters in Nigerian Igbos and found out that the Igbos have a platyrrhine type of nose [13]. A study was also done on the nasal parameters of the Itsekiris and Urhobos of Nigeria [14]. Ebeye et al., carried out a study on the facial dimensions among Urhobo people of Southern Nigeria. The Urhobos are mesoprosopic [15]. An anthropometric study was carried out on some craniofacial parameters; head circumference, nasal height, nasal width and nasal index of adult Ijaws of Nigeria. Sexual dimorphism was seen, with significantly higher values of all the parameters in males compared to the females ($P < 0.05$) [16].

This study was carried out to provide data on facial and nasal height amongst adult Ijaws in Delta State. This study was carried out on Ijaws because literature search did not reveal any work on facial height done among the Ijaws in Nigeria. The mean nasal height will be compared to that observed by Oladipo et al., in 2010 among the Ijaws.

Anthropometry of the face is important as it is used in formulating standard sizes when designing facial equipments like goggles and face mask. It plays a major role in facial surgery. This study would provide a comprehensive data for use in anthropology and forensic medicine.



Figure 1: Measurement of facial height.

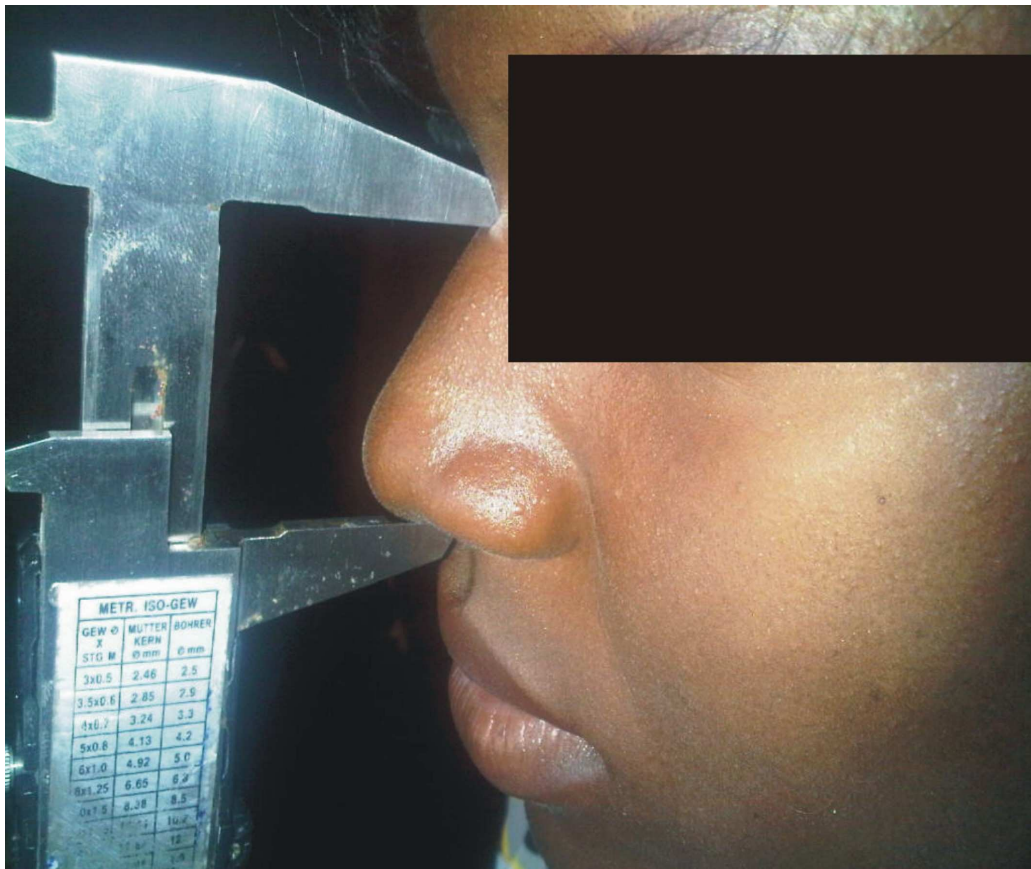


Figure 2: Measurement of nasal height.

MATERIALS AND METHODS

This is a cross sectional study that involved 400 Ijaw subjects aged between 18 and 30 years. 200 were males while 200 were females. Each subject was made to sit in a relaxed and upright position with head in an anatomical position while taking measurements. The parameters were taken using a sliding digital vernier caliper. Facial height was measured from the nasion to the menton of the mandible (Figure 1) while the nasal height was measured from the nasion to the nasopinale (Figure 2).

A digital vernier caliper was used. The vernier caliper is calibrated in inches and millimeters. The data taken in millimeters were converted to centimeters. The subjects were told the nature and objectives of the study and only those who gave consent were included in the study. Approval for this study was obtained from the Departmental Ethics Committee with reference BMS/REC/01. Subjects were of Ijaw ethnic origin by both parents and grandparents. None of the subjects had history of plastic surgery or trauma of the face. Also none had history or clinical features of craniofacial disorders.

RESULTS AND DISCUSSION

Table 1: Facial height in Ijaw males and females

Gender	Mean(cm)	Standard deviation	Minimum	Maximum	Number
Male	11.58	0.66	9.79	13.79	200
Female	10.86	0.56	9.60	11.95	200

Table 2: Nasal height in Ijaw males and females

Gender	Mean (cm)	Standard deviation	Minimum	Maximum	Number
Male	4.51	0.39	3.58	5.51	200
Female	4.21	0.26	3.29	4.95	200

Table 3: Mean facial and nasal height of adult Ijaws.

Parameters	Mean (cm)	Standard deviation	Number
Facial height	11.22	0.61	400
Nasal height	4.36	0.33	400

Table 4: Facial and nasal height in different populations.

Source	Group	Facial height (cm)	Nasal height (cm)
Niswander et al., 1967	Xavante (Brazilian Indian)	12.57	5.55
Herskovites (1937)	Ashanti (African Negroes)	11.90	5.30
Steggarda (1932)	Dutch (Caucasians)	12.29	5.61
Olutu et al., 2009	Nigerians (Igbos)	11.72	4.64
Present study	Nigerians (Ijaws)	11.22	4.36

DISCUSSION

The mean for male and female facial heights are 11.58cm and 10.86cm respectively, while the mean for the male and female nasal heights are 4.51cm and 4.21cm respectively. The facial and nasal heights of the males are higher than those of the females ($p < 0.05$). Oladipo et al., in 2010 saw a mean nasal height of 4.08 cm and 3.89 cm for the Ijaw male and female respectively [16]. The disparity could be as a result of the large sample size and subjects older than 30 years in their sample. A total of one thousand (1000) adults with age ranging from 18-65 years old were used for that study. In that study all the subjects were drawn from Ijaw ethnic group in Bayelsa State. That study like the present one displayed sexual dimorphism, with significantly higher values in males compared to the females ($p < 0.05$).

This study concurs with that of Olutu et al., on facial and nasal height of the Igbo ethnic group in Nigeria where sexual dimorphism was observed with the males having significantly higher facial and nasal height than the females ($p < 0.05$). In that study, the facial height of males and females was 12.25 cm and 11.19 cm respectively while the nasal height of males and females was 4.87cm and 4.40 cm respectively [10]. This study also concurs with one done on facial dimensions of the Urhobo's in which all the variables studied have the mean male values higher than those of the female ($p < 0.05$) [15]. However, this present research differs from findings reported on nasal height for Igbos which is 6.22cm [13]. Olutu et al., reported average facial and nasal height of 11.72cm and 4.64cm respectively for the Igbo Nigerian population [10]

As shown on Table 4, the Xavante group Brazilian- Indian population has an average facial height of 12.57cm and an average nasal height of 5.55cm [17]. Herskovites reported an average facial and nasal height of 11.90cm and 5.30cm respectively for the Ashanti population of African Negroes [18]. Steggarda saw average facial and nasal height of 12.29cm and 5.61 respectively for a Dutch population [19].

Amongst the groups in Table 4, the Brazilian Indians of Xavante population presented the highest value for facial height (12.57cm) while adult Ijaws of Nigerian population presented the lowest value of 11.22cm. The highest value of 5.61cm for the nasal height is seen in the Dutch population while the Ijaws in this study have the lowest value of 4.36cm. The facial height in this study is closest to that of the Ashanti population probably because both populations are of African origin.

CONCLUSION

The mean nasal and facial height between adult male and female Ijaw subjects have been determined and compared. The mean facial heights of adult Ijaw male and female subjects are 11.58cm and 10.86cm, respectively. The mean nasal heights of adult Ijaw male and female subjects are 4.51cm and 4.21cm respectively. There was sexual dimorphism, with significantly higher values of all parameters in males compared to females ($P < 0.05$).

REFERENCES

- [1] Argyropoulos E., Sassouni V., *Am J Ortho Dentofac Orthoped*, **1989**, 95:238-249.
- [2] Ghosh S., Malik S.L., *Internet J Biologic Anthropol*, **2007**, 1 (1).
- [3] Kewal K., *Internet J Forensic Sci*, **2007**, 2 :(1).
- [4] Moore K. L., Dalley A. F., *Clinically Oriented Anatomy*. Lippincott Williams and Wikins Publishing company Philedephia. 5th, **2006**, Pp 933.
- [5] Jahanshahi M., Golalipour M. J., Heidari K., *Singapore Med J*, **2008**, 49 (11): 940-943.
- [6] Baral P., Lobo S. W., Menezes R. G., Kanchan T., Krishan K., Bhattacharya S., Hiremath S. S., *Singapore Med J*, **2010**, 51(3) : 212-215.
- [7] De Freitas L.M., Pinzan A., Janson G., Freitas K.M., De Freitas M.R., *Am J Orthod Dento-fac Orthop*, **2007**, 131(6): 706.
- [8] Porter J. P., Krista O. L., *Arch Fac Plast Surg*, **2001**, 3(3):191-197.
- [9] Kewal K., Kumar R., *Leg Med*, **2007**, 9 (3): 128-133.
- [10] Olutu J. E., Eroje A. , Oladipo G.S. , Edibamode E., *Internet J Biologic Anthropol*, **2009**, 2(2).
- [11] Utomi I.L., *Nig Postgraduate Med J*, **2004**, 11(1): 32-36.
- [12] Garba S.H., Numan A.I., Mishara I.G., *Int J Morphol*, **2008**, 26(2): 407-410.
- [13] Akpa A. O. C, Ugwu C., Maliki A. O., Maliki S. O., *J Exp Clin Anat.*, **2003**, 2 (2):24-25.
- [14] Oladipo G.S., Udoaka A. I., Afolabi E.O., Bob-Manuel I. F., *Internet J Biologic Anthropol*, **2009**, (3) 1.
- [15] Ebeye O. A., Emore E., Ebite E., Ijeh N. J., *Internet J Biologic Anthropol*, **2010** 4 (1).
- [16] Oladipo G.S., Okoh P.D., Hart J.S., *As J Med Sci*, **2010**, 2(3): 111-113.
- [17] Niswander J. D., Keiter F., Nee J. V., *Am J Hum Genet*, **1967**, 19:490-501.
- [18] Herskovits M. J., *Human Biol*, **1937**, 9:483-497.
- [19] Steggerda M., *Am J Phys Anthropol*, **1932**, 16:309-327.