

## Short Communication

# Anthropometric comparison of nasal indices between Andoni and Okrika tribes of Rivers State, Nigeria

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**A comparative study on Nasal Index was carried out on subjects from Andoni and Okrika tribes of Rivers State in the Niger Delta region of Nigeria. Four hundred individuals were randomly selected from each tribe comprising 200 males and 200 females, respectively. The ages of the subjects ranged from 21-30 years. The height of the nose (NH) and the breadth of the nose (NB) were measured for each subject using a sliding caliper and the nasal index calculated. The mean nasal index of the Adonis was  $79.83 \pm 4.19$  and  $83.77 \pm 1.09$  for male and female respectively while that of the Okrikas males and females were  $86.23 \pm 1.72$  and  $86.46 \pm 2.37$ , respectively. The mean nasal index of the Okrika tribe was  $86.38 \pm 1.35$  and this was significantly higher than the mean nasal index of Andoni tribe ( $81.86 \pm 2.26$ )  $p < 0.05$ . Thus the Okrikas fall within the Platyrhine nose type while the Andonis fall within the Mesorrhine nose type.**

**Key words:** Nasal indices, platyrhine, mesorrhine, Okrika, Andoni, Nigeria.

## INTRODUCTION

The Andoni and Okrika ethnic groups are an indigenous people of the east western parts and south eastern region respectively of Rivers state in the Niger Delta region of Nigeria. Their predominant occupation is fishing. Anthropometric parameters show peculiarity in different living races (Risley, 1915) and analysis of nose has aided in the classification of nasal index into three different nose types (Williams et al., 1995; Porter and Olson, 2003). Nasal index is very useful in the analysis and classification of fossil remains as well as the study of living populations (Alex et al., 1996). It is used clinically in nasal surgery and medical management (Ochi et al., 1993). The measurement of nose can also help to reveal the course of evolution leading to the modern varieties of man (Daniel, 2003). This is also useful in the determination of race and sex of individual or group whose identity is unknown (Franciscus et al., 2000). The shape of the nose can be determined by environmental climatic condi-

tions (Last, 1981). The narrower noses are favored in cold and dry climates whereas broader noses in warmer, moister ones as a consequence of natural selection in human evolution (Hall and Hall, 1995). There are three categories of nose on the basis of nasal index; these are Leptorrhine with a Nasal Index of 69.90 or less, Mesorrhine with a Nasal index between 70 and 84.90 and Platyrhine (broad nose) with a nasal index of 85 and above (Williams et al., 1995; Porter and Olson, 2003).

Carleton (1989) showed that the Negroid race mainly of African descent have the Platyrhine nose type. In Nigeria, Akpa et al. (2003) did a study on the nasal parameters in Nigerian Igbos and classified them as Platyrhine. Oladipo et al. (2007) also conducted a study on the morphometric analysis of the nasal parameters of Igbo, Ijaw and Yoruba ethnic groups in southern Nigeria. Their findings showed a mean nasal index  $>85.0$  in the three Nigerian ethnic groups studied. The Ijaws had the highest nasal index (96.4) followed by Igbos (94.1) while the lowest value was observed in Yorubas (89.2). Males had a higher nasal index than the females in all the ethnic groups. The differences observed were statistically significant ( $p < 0.05$ ).

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**Table 1.** Mean, standard deviation (S.D) and standard error (S.E) of nasal index of Andoni and Okrika tribes in Rivers State, Nigeria.

Groups	Andoni		Okrika	
	Male	Females	Male	Females
Mean	79.83	83.77	86.23	86.46
S.D	4.19	1.09	1.74	2.37
S.E	0.3	0.08	0.12	0.17
N	200	200	200	200

$p < 0.05$ , SD = standard deviation, SE = standard error, n = number of subjects.

**Table 2.** Overall mean and standard deviation (S.D) of nasal index of Andoni and Okrika tribes in Rivers State, Nigeria.

Groups	Andoni	Okrika
Overall mean	86.38	81.86
S.D	1.35	2.26
N	400	400

$p < 0.05$ , SD = standard deviation, n = number of subjects

This study was carried out to compare the nasal indices of Andoni and Okrika tribes of Rivers State and to provide a baseline data of nasal index which could be vital in forensic and anthropological studies.

## MATERIALS AND METHODS

Participants were of Andoni and Okrika tribes of Rivers State, Nigeria.

A total number of 800 adult subjects which comprised 400 Andonis and 400 Okrikas aged between 21-30 years were used for this study. Two hundred (200) of the Andoni subjects were males while 200 were females. Two hundred (200) of the Okrikas were males while 200 were females. Participants were selected by random sampling; subjects were classified as Adoni or Okrika by birth. The subjects who had trauma of the nose or cleft lips were excluded from the study. The height of the nose (NH) was measured with the help of sliding caliper, from nasion to nasospinale. The nasal breadth (maximum breadth of the nose) was measured at right angle to the nasal height from ala to ala. All the measurements were taken with the subject sitting in chair in a relaxed condition and head in the anatomical position. The measurement was done by one observer to prevent inter-observer error. Nasal index was calculated as follows: Nasal index = (Nasal breadth / Nasal height) (Romo and Abraham, 2003). The data were subjected to statistical analysis using student T-test.

## RESULTS

In the present study, the nasal index of Andoni males and females was  $79.83 \pm 4.19$  and  $83.77 \pm 1.09$  respectively while that of Okrika males and females was  $86.23 \pm 1.74$  and  $86.46 \pm 2.37$ , respectively (Table 1). Sexual dimorphism was recognized in Andoni ethnic group with females

having a significantly higher value than males with  $p < 0.05$ . However, in the Okrika ethnic group, there was no significant difference in nasal index between males and females. The mean nasal index of the Okrika tribe ( $86.38 \pm 1.35$ ) was significantly higher than Andoni tribe ( $81.86 \pm 2.26$ ) with  $p < 0.05$  (Table 2). The result also shows that the Okrika tribe has a Platyrhine type of nose while the Andoni tribe has a Mesorrhine type of nose

## DISCUSSION

Facial anthropometry plays a major role in the diagnosis of several dysmorphic syndromes (Guyot et al., 2003; Zankl and Molinari, 2003). The nasal index is very useful in anthropology as it is one of the clinical anthropometric parameter recognized in nasal surgical and medical management (Hansen and Mygind, 2002; Zankl et al., 2002).

Various studies have indicated racial and ethnic differences in nasal index amongst different populations. Risley (1915) reported that the nasal index of Africans is basically platyrhine; this does not agree with our study which showed that the Andoni tribe has a Mesorrhine type of nose. Morphometric parameters are dependent upon age, race and sex and so a Mesorrhine nose could be typical to the Adoni tribe, though this suggestion warrants further supportive studies.

In Nigeria, Oladipo et al. (2007) also reported a Platyrhine kind of nose in a morphometric analysis of the nasal parameters of Igbo, Ijaw and Yoruba ethnic groups in southern Nigeria with males having significantly higher nasal index than females ( $p < 0.05$ ), their findings did not agree with our findings on sexual dimorphism as females of Andoni origin had a significantly higher nasal index ( $p < 0.05$ ) than males. Although, our findings showed a Platyrhine kind of nose in the Okrika tribe of Rivers state, no sexual dimorphism was found between the male and female groups.

In conclusion, the Andonis fall within the Mesorrhine nose type while the Okrikas fall within the Platyrhine nose type. This study should be subjected to further investigation because of its relevance to forensic science and clinical anthropometry.

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