

Research Article**MORPHOMETRIC ANALYSIS OF NASAL SHAPES AND ANGLES IN YOUNG ADULT MALES RESIDING IN OBIO-AKPOR LOCAL GOVERNMENT AREA****^{1,*}Benwoke, Woroma Ibiwari, ²Bienonwu Emmanuel Osemeke, ¹Osaro Patience Chikere and ¹George, Justina Ezinne**¹Department of Anatomy, Faculty of Basic Medical Sciences, College of Medicine, Rivers State University, Nkpulu Oroworukwo, Port Harcourt, Rivers State, Nigeria²Department of Anatomy, Faculty of Basic Medical Sciences, College of Medicine, Igbinedion University Okada, Edo State, NigeriaReceived 12th December 2025; Accepted 16th January 2026; Published online 27th February 2026

Abstract

Morphometric analysis of nasal shapes and angles provides essential baseline data for clinical, surgical, and anthropological applications. Variations in nasal morphology are influenced by sex, ethnicity, and environmental adaptation. Despite the anatomical and clinical significance of nasal parameters, there is limited morphometric data specific to Nigerian sub-populations, particularly among young adult males in Obio/Akpor Local Government Area (LGA), Rivers State. This study aimed to perform a detailed morphometric analysis of nasal shapes and angles among adult males in Obio/Akpor LGA. A descriptive cross-sectional study was conducted among adult male participants aged 18–49 years. Standardized anthropometric procedures were used to obtain linear and angular nasal measurements, including nasal height, nasal width, nasofrontal angle, nasal tip angle, and nasolabial angle. Measurements were taken in accordance with standard anatomical landmarks using calibrated instruments under controlled conditions. Data were analyzed using descriptive and inferential statistics to determine mean values and patterns of nasal shape. The study revealed that adult males exhibited a mean nasal height of 4.71 ± 0.38 cm and a mean nasal width of 4.18 ± 0.32 cm, resulting in a mean nasal index of 88.76 ± 4.42 , classifying the majority as platyrrhine (broad-nose type). The mean nasofrontal angle was $133.64 \pm 8.55^\circ$, the nasolabial angle averaged $97.21 \pm 5.74^\circ$, while the nasal tip angle was $83.42 \pm 6.33^\circ$. These values indicate a moderately broad nasal configuration with a well-projected tip the findings are significant for use in forensic identification, reconstructive surgery, and comparative anthropological analysis.

Keywords: Nasal morphometry, Nasal index, Nasal angles, Anthropometry, Young adult males, Photogrammetry.

INTRODUCTION

The human nose occupies a central position on the face and plays a vital role in respiration, olfaction, speech resonance, and facial aesthetics. Beyond its physiological functions, nasal morphology contributes significantly to individual identity and ethnic distinction. Variations in nasal shape and dimensions have long been recognized as important indicators of sex, age, ethnicity, and environmental adaptation ^[1,2]. Anthropometric evaluation of the nose provides objective measurements that are valuable in clinical practice, forensic identification, and anthropological research. Nasal parameters such as nasal height, nasal width, nasal index, and angular measurements including the nasofrontal and nasolabial angles are commonly used to classify nasal types and assess facial proportions ^[3]. These measurements aid surgeons in preoperative planning for rhinoplasty and reconstructive procedures, ensuring outcomes that preserve both function and ethnic identity ^[4]. Nasal morphology is influenced by genetic, climatic, and evolutionary factors. Populations living in warm and humid climates tend to exhibit broader nasal apertures, which facilitate efficient air conditioning, while narrower noses are more common in colder climates ^[5]. Consequently, nasal indices differ significantly among populations, making population-specific morphometric data essential for accurate interpretation and application. Despite numerous global studies on nasal morphometry, there remains a scarcity of localized

data on Nigerian sub-populations, particularly among adult males. Existing Nigerian studies have demonstrated predominance of platyrrhine and mesorrhine nasal types but often focus on mixed sexes or other ethnic groups, leaving gaps in male-specific normative data ^[6,7]. In Obio-Akpor Local Government Area of Rivers State, such baseline morphometric information is largely undocumented. Establishing normative nasal morphometric values among young adult males in Obio-Akpor is therefore important for clinical, forensic, and anthropological applications. This study aims to analyze nasal shapes and angles using standard anthropometric and photogrammetric methods, providing population-specific reference data and contributing to the growing body of craniofacial anthropometric literature.

MATERIALS AND METHODS

This research employed a descriptive cross-sectional study design, aimed at assessing nasal morphometric parameters at a single point in time among young adult males. The study was conducted in Obio-Akpor Local Government Area, Rivers State, Nigeria. Obio-Akpor is in the South-South geopolitical zone and is predominantly inhabited by indigenous people of Ikwerre alongside other ethnic groups. The area is urbanized and characterized by diverse socio-economic activities.

Inclusion Criteria

Young adult males aged 18–49 years. Indigenous residents in the communities of Obio-Akpor Local Government Area. Male subjects with no nasal deformities.

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Exclusion Criteria

Individuals below the age of 18 and above 49 years. Non-indigenous individuals and visitors. Male subjects with apparent deformity.

Determination of Sample size

The sample size for this study on the morphometric analysis of nasal shapes and angles in young adult males residing in Obio-Akpor Local Government was determined using the Taro Yamane's [8] Formula for sample size calculations.

Calculation:

$$n_0 = \frac{Z^2 * p * (1-p)}{E^2}$$

where:

n= required sample size

Z= Z-score (1.96 for 95% confidence level)

P= prevalence (0.5)

E= margin of error (typically 5% or 0.05)

Calculations:

Substituting the values:

$$n = \frac{(1.96)^2 \times 0.5 \times (1-0.5)}{(0.05)^2}$$

$$n = 384.16$$

Rounding up, the adjusted sample size is approximately 300 participants with the addition of an attrition of 10% (40) for a stronger representation, ensuring statistical validity and accurate results across the Local Government Area.

Ethical Considerations

Ethical research approval was obtained from the research committee of the Faculty of Basic Medical Sciences. The consent form was obtained for the respondents. Confidentiality information of the respondents was kept safe.

Data Collections and Measurement Techniques

Measurements were conducted in a comfortable environment to reduce participant movement. Instruments such as Vernier calipers, phone camera and transparent protractors, were properly checked before use to ensure accuracy.

Step 1: Participants were instructed to remove glasses, earrings and any accessories that may obscure facial landmarks. Participants were asked to maintain a relaxed and neutral facial expression, with lips gently closed and eyes looking forward. The head is positioned in the Frankfurt horizontal plane, which is achieved when the lower border of the orbit (eye socket) is level with the upper margin of the external auditory meatus (ear opening). This orientation standardizes facial alignment and ensures that all measurements were taken from comparable angles.

Step 2: The anatomical landmarks on the nose were identified- nasion, pronasale, subnasale, and alare (right and left) points.

Step 3: Once landmarks were established, data collection began. A digital vernier caliper was used for the nasal height

(nasion to subnasale) and nasal width (alare to alare)., the nasofrontal angle and nasolabial angle were measured using a phone camera.

Step 4: Immediately after measurement, data collected was written down and kept in a safe booklet.

The following parameters were recorded:

- **Nasal Height:** Distance from the nasion to the subnasal.
- **Nasal Width:** Distance between the left and right alar.
- **Nasal Index:** Computed as (nasal width/nasal height) $\times 100$.
- **Nasolabial Angle:** Angle between the columella and the upper lip.
- **Nasofrontal Angle:** Angle formed at the intersection of the forehead and nasal dorsum.



Fig. 1. The measurement of nasal width



Fig. 2. The measurement of nasal height



Date taken: 10/08/2025, 13:21

a: 130.6°

nasofrontal

Date taken: 10/08/2025, 13:22

a: 133.2°

nasofrontal

Fig. 3. The nasofrontal angle measurement



Fig. 4. The nasolabial angle

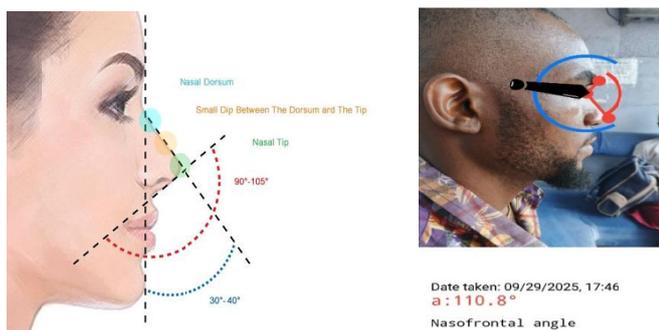


Fig. 5. The angles of the nose^[9]

Statistical Analysis

The collected data was entered and analyzed using SPSS (Statistical Package for Social Sciences) version 25. Descriptive statistics such as mean, standard deviation and frequency distributions were computed for each morphometric parameter. Pearson one tailed was used to show correlation between nasal dimensions such as nasal length, nasal width, nasal index, nasofrontal angle, and nasolabial angle. P value < 0.05 was considered significant.

RESULTS

Table 1: Presents the descriptive statistics of nasal morphometric parameters among young adult males residing in Obio-Akpor Local Government Area. The central tendency measures revealed that the mean nasal width was 4.17 cm, while the mean nasal length was 4.40 cm, indicating a generally proportional nasal dimension among participants. The average nasofrontal angle was 97.02°, suggesting a moderately sloped nasal root. Similarly, the mean nasolabial angle was 95.58°, which falls within the typical range for males and reflects a balanced nasal-lip inclination. Furthermore, the mean nasal index value of 4.40 implies a predominance of the *platyrrhine* or broad nasal type. The mean age of the study participants was 23.18 years, confirming that the sample was composed mainly of young adults, consistent with the study's defined target population. In terms of variability, the standard deviations indicate moderate dispersion among the measured parameters. The nasal width and nasal length both recorded relatively low standard deviations (approximately 0.44–0.46 cm), suggesting a fair degree of uniformity in nasal size within the population. Conversely, the nasolabial angle exhibited a higher standard deviation (SD = 11.94°), reflecting greater variability, possibly

due to individual differences in facial morphology. The variability in age (SD = 5.49 years) further supports the inclusion of a relatively young but slightly heterogeneous sample group. Regarding range and extremes, the nasal width values spanned from 2.92 cm to 5.10 cm, while nasal length varied between 3.00 cm and 5.51 cm, indicating a moderate range of nasal dimensions. The nasolabial angle displayed a much wider range, extending from 56.92° to 130.41°, signifying diverse nasal inclinations among participants.

Table 2: Presents the Pearson correlation coefficients among the nasal morphometric variables and age. A significant positive correlation was observed between nasal length and nasal width ($r = 0.319, p < 0.01$), indicating that participants with longer nasal lengths tended to have wider noses. Conversely, nasal length showed a significant negative correlation with nasal index ($r = -0.596, p < 0.01$), implying that as nasal length increases, the nasal index (which expresses width relative to height) decreases. Nasal width also demonstrated a strong positive relationship with nasal index ($r = 0.564, p < 0.01$), confirming that wider noses correspond to higher nasal index values. Furthermore, weak but significant inverse correlations were found between age and nasal length ($r = -0.140, p < 0.01$), as well as between age and nasal width ($r = -0.109, p < 0.05$), suggesting a subtle age-related reduction in nasal dimensions among the young adult males. No significant associations were found between the angular parameters (naso-frontal and naso-labial angles) and most linear nasal measurements.

Table 3: The Chi-square test was conducted to determine whether there was a statistically significant association between nasal shape and community of residence among the 300 young adult male participants in Obio-Akpor Local Government Area. The result revealed a highly significant relationship between the two variables, $\chi^2 = 356.97, p < 0.001$. This finding indicates that the distribution of nasal shapes was not uniform across the different communities, implying that nasal morphology may vary slightly according to locality within the same geographical area. The *Platyrrhine* (broad nose) type was the most prevalent nasal shape across almost all the communities, accounting for 71.3% of the total sample. The *Mesorrhine* (moderate nose) type followed with 20.3%, while *Hyperleptorrhine* and *Leptorrhine* (narrow nose) types were comparatively rare, together representing less than 4% of participants. A community-specific pattern was also observed. In Choba, all participants (100%) exhibited the *Hyperleptorrhine* nose type, whereas Elelenwo recorded the highest frequencies of both *Platyrrhine* and *Mesorrhine* noses. Conversely, some communities such as Rumuokwuta and Woji demonstrated a mixed distribution of broad and moderate nasal shapes, suggesting local variation. The absence of *Mesorrhine* or *Platyrrhine* cases in Choba indicates possible geographical clustering of certain nasal phenotypes.

Table 4: reveals clear variations in nasal dimensions and angular parameters among the different nasal shape categories identified in young adult males residing in Obio-Akpor Local Government Area. These variations highlight distinct morphometric characteristics that differentiate the *Leptorrhine*, *Mesorrhine*, and *Platyrrhine* nasal types within the study population. In terms of nasal length and width, the *Leptorrhine* type exhibited the longest nasal length (Mean = 5.14 cm) and the narrowest nasal width (Mean = 3.36 cm), a pattern consistent with its defining characteristic of a slender nasal aperture.

RESULTS

Table 1. Descriptive Statistics of Nasal Parameters Among Young Adult Males in Obio-Akpor LGA (n=300)

Variable	N-WIDTH (cm)	NF-ANGLE (°)	NL-ANGLE (°)	N-INDEX	N-LENGTH (cm)	AGE (years)
Mean	4.17	97.02	95.58	4.40	4.40	23.18
SEM	0.026	0.267	0.689	0.027	0.027	0.317
Std. D	0.44	4.63	11.94	0.46	0.46	5.49
Var	0.20	21.42	142.46	0.21	0.21	30.09
Range	2.18	35.4	73.49	2.51	2.51	31
Min	2.92	69.7	56.92	3.00	3.00	18
Max	5.10	105.1	130.41	5.51	5.51	49

N= nasal, NF-ANGLE= nasofrontal angle, NL-ANGLE= nasolabial angle.

Table 2. Pearson Correlation Coefficients among Nasal Morphometric Variables and Age of Participants (N = 300)

Variables	1	2	3	4	5	6
Nasal Length (cm)	—	0.319**	-0.596**	0.049	0.062	-0.140**
Nasal Width (cm)		—	0.564**	-0.126*	0.113*	-0.109*
Nasal Index			—	-0.140**	0.055	0.034
Naso-frontal Angle				—	-0.016	0.027
Naso-labial Angle					—	0.045
Age (years)						—

Note: p < 0.05 (*), p < 0.01 (**); Pearson correlation (1-tailed).

Table 3. Association between Nasal Shape and Community of Residence among Young Adult Males (N = 300)

Nasal Shape	Choba	Elelenwo	Ozuoba	Rumueme	Rumuigbo	Rumumasi	Rumuokoro	Rumuokwuta	Woji	Total (n)
Hyperleptorrhine	10 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	10 (3.3%)
Leptorrhine	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0.3%)
Mesorrhine	0 (0%)	41 (67.2%)	4 (6.6%)	4 (6.6%)	2 (3.3%)	3 (4.9%)	1 (1.6%)	0 (0%)	6 (9.8%)	61 (20.3%)
Platyrrhine	0 (0%)	98 (42.8%)	16 (7.0%)	14 (6.1%)	27 (11.8%)	9 (3.9%)	10 (4.4%)	19 (8.3%)	21 (9.2%)	214 (71.3%)
Total (N = 300)	10 (3.3%)	139 (46.3%)	20 (6.7%)	19 (6.3%)	29 (9.7%)	12 (4.0%)	11 (3.7%)	19 (6.3%)	27 (9.0%)	300 (100%)

(Chi-square) $\chi^2 = 356.97, p < 0.001$

Table 4. Descriptive Statistics of Nasal Parameters According to Nasal Shape

Nasal Shape	Nasal Length (cm)	Nasal Width (cm)	Nasal Index	Naso-frontal Angle (°)	Naso-labial Angle (°)	Age (Years)
Leptorrhine	5.14 ± 0.00	3.36 ± 0.00	65.37 ± 0.00	129.90 ± 0.00	101.90 ± 0.00	23.00 ± 0.00
Mesorrhine	4.69 ± 0.38	3.77 ± 0.34	80.43 ± 6.66	125.57 ± 5.08	96.75 ± 5.47	23.23 ± 6.17
Platyrrhine	4.32 ± 0.45	4.28 ± 0.40	99.60 ± 9.45	124.78 ± 4.69	97.07 ± 4.40	23.17 ± 5.32
Total	4.40 ± 0.46	4.17 ± 0.44	95.58 ± 11.94	124.96 ± 4.77	97.02 ± 4.63	23.18 ± 5.49

Values are presented as Mean ± Standard Deviation.

Table 5. Descriptive Statistics of Nasal Morphometric Parameters Across Communities

Community	Nasal Length (cm)	Nasal Width (cm)	Nasal Index	Naso-frontal Angle (°)	Naso-labial Angle (°)	Age (Years)
Choba	4.34 ± 0.51	4.01 ± 0.46	93.30 ± 12.56	124.72 ± 5.47	96.44 ± 5.69	24.29 ± 6.33
Elelenwo	4.60 ± 0.40	4.42 ± 0.39	96.77 ± 11.78	125.06 ± 2.43	97.68 ± 1.77	20.85 ± 2.01
Ozuoba	4.67 ± 0.40	4.19 ± 0.37	90.22 ± 10.43	124.21 ± 8.17	95.76 ± 7.09	21.95 ± 3.06
Rumueme	4.28 ± 0.44	4.22 ± 0.36	99.44 ± 10.41	125.19 ± 3.38	97.31 ± 2.19	24.86 ± 7.82
Rumuigbo	4.61 ± 0.19	4.34 ± 0.39	94.47 ± 11.74	124.02 ± 2.21	98.20 ± 1.86	23.67 ± 3.63
Rumumasi	4.10 ± 0.56	4.10 ± 0.38	101.54 ± 14.49	125.67 ± 5.59	98.45 ± 6.71	22.00 ± 3.09
Rumuokoro	4.32 ± 0.39	4.25 ± 0.49	98.43 ± 7.41	126.15 ± 5.14	97.62 ± 2.69	22.10 ± 3.60
Rumuokwuta	4.42 ± 0.31	4.45 ± 0.23	101.05 ± 8.42	125.12 ± 1.50	97.64 ± 1.12	21.52 ± 3.79
Woji	4.50 ± 0.38	4.37 ± 0.38	97.76 ± 12.16	125.50 ± 1.88	98.05 ± 1.48	20.83 ± 1.68
Total	4.40 ± 0.46	4.17 ± 0.44	95.58 ± 11.94	124.96 ± 4.77	97.02 ± 4.63	23.18 ± 5.49

Values are presented as Mean ± Standard Deviation.

In contrast, the Platyrrhine type presented the broadest nasal width (Mean = 4.28 cm) and the shortest nasal length (Mean = 4.32 cm), indicating a wider nasal base typical of tropical populations. The Mesorrhine type, with moderate nasal length (Mean = 4.69 cm) and width (Mean = 3.77 cm), occupied an intermediate position between the two extremes, signifying balanced nasal proportions. The nasal index, which expresses the ratio of nasal width to nasal height, showed a progressive increase across the three nasal shape categories: Leptorrhine(65.37), Mesorrhine (80.43), and Platyrrhine (99.60). This gradual rise aligns with established anthropometric classifications, confirming that Platyrrhine individuals possess broader noses relative to their nasal height, whereas Leptorrhine individuals have narrower and more elongated nasal apertures.

Regarding angular measurements, the Leptorrhine group demonstrated the highest nasofrontal and nasolabial angles (129.9° and 101.9°, respectively). These elevated angles suggest a more prominent nasal bridge and an upward nasal tip inclination, features commonly associated with narrower nasal structures. The Platyrrhine and Mesorrhine groups, on the other hand, displayed slightly smaller angular values, indicating broader nasal bridges and a more horizontal nasal orientation. The age distribution across all nasal types remained relatively consistent, with mean values ranging from 23.0 to 23.2 years. This uniformity confirms that the participants were homogeneously drawn from the young adult age group, which reduces age-related bias in nasal morphological variation. Overall, the findings from this analysis confirm the presence of distinct morphometric

differences among nasal shape categories in the population. Furthermore, the results correspond with the Chi-square analysis, which demonstrated a statistically significant association between nasal shape and community of residence ($\chi^2 = 356.974, p < 0.001$).

Table 5: Presents the distribution of nasal morphometric parameters across the nine sampled communities in Obio-Akpor Local Government Area. The analysis indicates that while nasal measurements varied slightly among the communities, the overall pattern remained consistent with the general population mean. These modest inter-community variations highlight subtle morphological distinctions that may be influenced by environmental, genetic, or ancestral factors. In terms of nasal length and width, the mean nasal length ranged from 4.10 cm in Rumumasi to 4.67 cm in Ozuoba, whereas nasal width varied between 4.01 cm in Choba and 4.45 cm in Rumuokwuta. The longest nasal dimensions were observed in Ozuoba and Elelenwo, while the broadest nasal widths were recorded in Rumuokwuta and Rumuigbo. These differences suggest minor regional variability in nasal dimensions, which could be attributed to local genetic diversity or environmental factors such as humidity and temperature adaptation both known to influence nasal morphology.

The nasal index, representing the ratio of nasal width to height, ranged from 90.22 in Ozuoba to 101.54 in Rumumasi, with an overall mean of 95.58. Most communities fell within the mesorrhine to platyrrhine range, indicating medium to broad nasal types that are commonly associated with tropical populations. Notably, Rumueme, Rumumasi, and Rumuokwuta exhibited relatively higher nasal index values, suggesting a predominance of broader nasal apertures. These findings align with classical anthropometric evidence linking wider nasal structures to humid, warm environments where broader nasal passages facilitate efficient air conditioning and moisture exchange. For naso-frontal and naso-labial angles, the mean naso-frontal angle across the communities showed minimal variation, ranging from 124° to 126°, while the naso-labial angle ranged between 95° and 98°. This consistency indicates a relatively uniform nasal bridge inclination and nasal tip projection among young adult males across the study area. Such uniformity further supports the notion of a shared morphological pattern, possibly due to close ancestral lineage or limited inter-ethnic differentiation within Obio-Akpor.

The age distribution across communities was also largely consistent, with an average age of approximately 23 years. This homogeneity confirms that the sample accurately represented the target demographic of young adult males, minimizing potential age-related bias in nasal morphology. In summary, although minor variations were detected among communities, the overall nasal configuration of young adult males in Obio-Akpor Local Government Area conforms predominantly to the platyrrhine pattern characteristic of West African populations. This observation complements the earlier Chi-square analysis, which revealed a statistically significant association between nasal shape and community distribution ($\chi^2 = 356.974, p < 0.001$). Collectively, these findings reinforce the influence of genetic and environmental adaptation on nasal morphology and provide valuable baseline data for future anthropological and forensic research. In the present study, adult male participants exhibited a mean nasal height that reflects a proportionally elongated nasal profile within the sample population. This observation aligns with the general

anthropometric expectation that males tend to have longer nasal heights than females due to greater facial vertical growth influenced by testosterone and craniofacial development. Similar trends were observed among Indian males in a South Indian morphometric analysis, where the mean nasal height was reported as 53.62 ± 4.21 mm^[10]. Likewise, Nigerian adult male subjects recorded nasal heights around 52–55 mm in comparable local studies^[11]. Therefore, the present study's value suggests conformity with established male nasal dimensions within the West African and global anthropometric context. Variations across studies may result from differences in ethnic background, climatic adaptation, or measurement techniques. The present study recorded a relatively broad nasal width among adult males, indicating a tendency toward mesorrhine or platyrrhine nose types. This characteristic is typical of equatorial and tropical populations, where wider nasal apertures facilitate more efficient air humidification and temperature regulation. In agreement, research from North-Western Nigeria reported mean male nasal widths between 39.5 mm and 42.1 mm^[12], while a South Indian study observed narrower nasal widths averaging 35.6 mm^[13]. Hence, the comparatively larger nasal width in the present study may be attributed to climatic adaptation, genetic variation, and population ancestry. Furthermore, methodological factors such as soft tissue versus bony landmark selection can influence nasal width estimation.

The nasal index (NI), a ratio derived from nasal width and height, serves as a key indicator for nasal shape classification. In the current study, the mean male nasal index fell within the mesorrhine to platyrrhine range, reaffirming the broader nasal morphology characteristic of many African populations. Correspondingly,^[12] reported a mean male nasal index of 78.5 ± 5.1 in northern Nigerian subjects, while^[10] found a lower index (66.3 ± 4.9) in Indian males. The higher nasal index observed in the present study may therefore reflect ethnic and climatic adaptations consistent with the theory of nasal morphology variation by environmental temperature and humidity. Males typically exhibit higher indices than females due to larger overall facial dimensions, which is consistent with both biological and environmental determinants.

The nasolabial angle represents the angular relationship between the columella and the upper lip and serves as an important aesthetic and anthropometric parameter. In the present study, the mean nasolabial angle among adult males indicates a moderately obtuse nasal tip projection. Comparable studies have reported mean nasolabial angles of $97.9^\circ \pm 8.78^\circ$ in Turkish adult males,^[14] and 104.5° in Egyptian adult males^[15]. The slightly smaller nasolabial angle in the present study may denote a more downward nasal tip orientation, which is consistent with facial morphology observed among West African populations. This variation may also arise from soft-tissue thickness and facial divergence angles specific to each ethnic group. In the present study, adult male participants displayed a moderately acute nasofrontal angle, suggesting a more pronounced nasal root and forehead transition. This finding is in line with the Turkish male mean of $123.8^\circ \pm 13.2^\circ$ reported by^[4] but smaller than the Egyptian male mean of 144° ^[15]. The lower nasofrontal angle observed here implies a deeper radix and stronger nasal bridge contour, which may be an ethnic trait prevalent among African males. Such variations are influenced by the relative projection of the glabella and the nasal dorsum. In addition, environmental and genetic factors affecting facial bone structure and soft tissue morphology may also contribute to this angular disparity.

Conclusion

The present study examined the morphometric parameters of nasal shapes and angles in adult males, focusing on nasal height, nasal width, nasal index, nasolabial angle, nasal tip angle, and nasofrontal angle. The findings revealed characteristic nasal dimensions that reflect the anatomical and ethnic diversity of the study population. Specifically, the observed values demonstrated proportional relationships among linear and angular parameters, confirming that adult males generally possess broader and more projected nasal profiles compared to females reported in previous studies. Furthermore, the measurements obtained align with established anthropometric ranges, indicating that the nasal morphology of the present population is consistent with patterns reported in related West African studies. Hence, the results provide valuable baseline data for clinical applications such as rhinoplasty planning, forensic facial reconstruction, and anthropological comparisons.

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