

Anthropometric Study of Nasal Index of the Kosovo Albanian Population

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Abstract

Human nose occurs in many shapes and sizes and ethnic influences my results in different appearances of the nose. Nasal index is an ethnic sensitive anthropometric index. It is an important atbropometric parameter for classifying the race and sex of the individual whose identity is unknown. This study was undertaken to determine the nasal index of the Kosovo Albanian population. The study sample comprised 204 subjects (101 males and 103 females) aged 18-25 years. Nasal height and nasal width were measured using an electronic digital caliper, with accuracy of 0.01 mm (Boss, Hamburg – Germany). Descriptive statistics showed that Kosovo Albanian males and females had mean nasal index of 67.07 ± 6.67 and 63.87 ± 5.56 , respectively. The distribution of the nose types showed leptorrhine to be 76.96 % and dominant type among Kosovo – Albanian population.

Key words Anthropometry, nasal height, nasal width, nasal index. leptorrhine

Introduction

Human physical variability has been a subject of great interest for the scientists for very long time and anthropometry evolved as a standard scientific technique for measuring human body dimensions (Eickstedt,1926) . Physical anthropology relies mainly on external measurements and descriptions of the human body and in particular upon the skeleton. Such measurements are useful in the analysis and classification of fossil remains as well as study of living population (Alex, 1996)

Facial anthropometry has become an important tool used in genetic counseling, reconstructive surgery and forensic investigation (Oladipo, 2007; Krishan, 2008; Olotu, 2009). The part of the human nose that protrudes forwards from the face is the external nose (Sinnatamby, 2006). The shape of the external nose is variable

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(Standring, 2008), and is determined by ethmoid bone and nasal septum, which consist mostly of cartilage and which separates the nostrils. The human nose can be found in many shapes and sizes and ethnic influences can result in different appearances of the nose (Heidari, 2009). The shape of the nose can be determined by environmental climate condition (Last, 1981). The narrower noses are favored in cold and dry climates while broader noses in warmer, moister ones as a consequence of natural selection in human evolution (Hall and Hall, 1995). Nasal index is very useful in anthropology in distinguishing racial and ethnic differences (Franciscus and Long, 2001; Porter and Olson 2003; Aung, 2000). It also exhibits sexual differences (Zhang, 1990) and it has become a useful tool in Forensic Science (Xu *et al.*, 2001).

The purpose of this study is to determine the nasal indexes and to classify the nose type of the Kosovo Albanian population. The present study will provide a normative data of nasal index, which will be relevant in physical anthropology, forensic medicine and rhinoplastic surgery.

Material and Methods

The study sample consisted of 204 subjects (101 males and 103 females) from Dental School, Medical Faculty, University of Prishtina, Prishtina (Republic of Kosovo). The age of the subjects ranged from 18-25 years. Subjects who had no trauma or surgery of the face or nose, no history of cleft lip or palate were included in the study. Nasal height (NH) and nasal width (NW) were taken on each subject following standard methods (Martin and Saller, 1957). Nasal height was measured as the distance from the nasion to the subnasale, using electronic digital caliper with accuracy of 0.01 mm (Boss, Hamburg – Germany). Nasal width was measured as a straight distance at right angle to the NH from ala to ala. Measurement was done by one observer to prevent inter-observer error. To reduce technical error of the measurements, each measurement was taken thrice and average taken. On the basis of the mentioned measurements the nasal index was calculated as follows: Nasal index = nasal width/nasal height x100 (Romo and Abraham, 2003). The data obtained were subjected to statistical analysis. Basic descriptive statistics and independent sample t-test were calculated using computerized statistical analysis software – SPSS (Statistical Package for Social Sciences and Microsoft Excel Windows 2007). The p value of less than 0.001 was considered statistically significant.

Results

The results of the study were presented in tabular forms (Table 1-4). The dimensions of the nasal parameters obtained in the study are shown in Table 1-2. The mean nasal height and nasal width in males were 55.26 ± 3.57 and 36.90 ± 2.67 , while those in females were 36.90 ± 2.67 and 33.12 ± 2.22 , respectively. The mean nasal height and width in male subjects was significantly higher than those in female subjects ($p < 0.0001$).

Table 1. Basic descriptive statistics of nasal height

Gender	N	Mean \pm SD (mm)	Range	95%CI	CV%	p-value
Males	101	55.26 \pm 3.57	46.49 – 64.54	54.57 – 55.95	6.46	t=7.03
Females	103	52.01 \pm 3.01	44.24 – 61.13	51.43 – 52.60	5.79	p<0.0001
Total	204	53.62 \pm 3.67	44.24 – 64.54	52.91 – 54.33	6.85	

Table 2. Basic descriptive statistics of nasal width

Gender	N	Mean \pm SD (mm)	Range	95%CI	CV%	p-value
Males	101	36.90 \pm 2.67	30.29 – 43.86	36.39 – 37.42	7.23	t=11.0
Females	103	33.12 \pm 2.22	27.60 – 38.04	32.68 – 33.55	6.72	p<0.0001
Total	204	34.99 \pm 3.10	27.60 – 43.86	34.39 – 35.59	8.85	

Descriptive statistics showed minimum and maximum nasal index to be 52.42 – 85.92 in males and 49.95 – 77.53 in females. Mean nasal index were 67.07 ± 6.67 and 63.87 ± 5.56 for males and females respectively, and the difference is statistically significant at 0.001 levels (Table 3). The mean nasal index of 67.07 and 63.87 fall under the leptorrhine type of nose.

Table 3. Descriptive statistics of nasal index of Kosovo-Albanian population

Gender	N	Mean \pm SD (mm)	Range	95%CI	CV%	p-value
Males	101	67.07 \pm 6.67	52.42 – 85.92	65.77 – 68.36	9.94	t=3.725
Females	103	63.87 \pm 5.56	49.95 – 77.53	62.80 – 64.95	8.70	p<0.001
All	204	65.46 \pm 6.32	49.95 – 85.92	64.23 – 66.68	9.66	

The distribution of the nose types showed leptorrhine to be 76.96% (males 69.31%, females 86.41%) and the dominant type of nose among Kosovo Albanian subjects. Mesorrhine was 22.55 % (males 31%, females 13.59%). The least were platyrrhine type 0.49%. (Table 4)

Table 4. Frequency (percentage) of nose types of Kosovo-Albanian population

Nose type	Males n (%)	Females n (%)	All n (%)
<i>leptorrhine</i>	68 (67.33)	89 (86.41)	157 (76.96)
<i>mesorrhine</i>	32 (31.68)	14 (13.59)	46 (22.55)
<i>platyrrhine</i>	1 (0.99)	-	1 (0.49)
All	101 (49.51)	103 (50.49)	204 (100.00)

Discussion

The nose is one of the best clues to racial origin (Madison, 2004). The nasal index is very useful in anthropology and it is one of the clinical anthropometric parameters recognized in nasal surgical and medical management (Hansen and Mygind, 2002; Zankl, 2002). Nasal index is related to regional and climatic differences (Farkas,1986). Various studies have indicated racial and ethnic differences in nasal index amongst different populations (Oladipo,2006). Most Caucasians are leptorrhine having long and narrow nose with nasal index of 69.9 or less. The Indo-Aryan is also similar to the European, possessing a fine nose (Sparks and Jantz, 2002). In Jingpo people in China are mesorrhine (Xu *et al.*, 2001). Indo-African (Sparks and Jantz, 2002) and Afro-American (Ofodile,1995) have platyrrhine nose type.

The present study indicated that the predominant nose type is leptorrhine based on the mean nasal index of 67.07 and 63.87 for males and females respectively. Literature has it that leptorrhine type of nose is typical for Albanian population (Pittard, 1910; Luschan, 1922, Tildesley, 1933). This study shows that males have a significantly higher nasal index than females ($p < 0.001$). This confirm the existence of sexual dimorphism in nasal paramerets among Kosovo Albanian population . The results are in agreement with Franciscus and Long (1991) and Oladipio (2010), who raported higher values for nasal height, nasal width and nasal index.

Conclusion

The mean nasal index of Kosovo Albanian population has been determined. The Kosovo Albanian fall within the leptorrhine nose type. The result of this study will be useful in forensic medicine and anthropology and will also serve as a future framework for estimating the other craniofacial variables in same population.

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