Bangladesh Journal of Anatomy July 2017, Vol. 15, No. 1, pp. 15-18

Photo-anthropometric Study of Nasal Length among Tribal Garo and Non-tribal Adult Bangladeshi Female of Greater Mymensingh Districts

Israt Jahan Tania[1], Humaira Naushaba[2], Uttam Kumar Paul[3], Mahbuba Akhter[4], Farzana Islam Khan[5], Umma Morium[6]

Abstract

Background: *The nose is a person's most defining feature because it is at the center of the face. The shape and length of the nose differs from race to race, tribe to tribe and from one environment to another. Anthropometry is a series of systematized measuring techniques that expresses quantitatively the dimensions of human body and skeleton which play an important role in distinguishing race. It provides quantitative data in identifying people having different physical characteristics in diagnosing people having craniofacial abnormality and to compare between patient and normal population.*

Materials & Methods: *Cross sectional analytical type of study was conducted in the department of Anatomy, Sir Salimullah Medical College, Dhaka, from January 2015 to December 2015.The study subjects consist of two hundred (200) adult Bangladeshi female of greater Mymensingh districts of which 100 were Garo tribal female and 100 were non-tribal female.*

Results: *The mean (±SD) nasal length from 'nasion to subnasale' was higher in non- tribal female than Garo tribal female and was statistically significant ($p<0.001$).*

Conclusion*: Nasal length from 'nasion to subnasale' was higher in non- tribal female compared to Garo tribal female.*

Key words: *Nasal length, Garo tribal female, Non-tribal female, Greater Mymensingh districts.*

Introduction

Variation is one of the most important phenomenon occuring in human population on the globe. Anthropometry is the hallmark technique that deals with the study of body proportion and absolute dimensions and vary with age and sex within and between racial groups. The dimensions of human body are affected by ecological, biological, geographical, racial, body habitus, age factors, personality, gender.[1] Regional and environmental climatic conditions are useful in determining the shape of the nose which may vary across different races and environments. The nasal measurements is one of the methods that anthropologists have used to differentiate living race and subspecies of man.[2]

Photo-anthropometry is the process of obtaining measurements by means of Digital photographic techniques potentially offer a highly practical, convenient and cost effective method. The reliability of the photographic technique is satisfactory. photography is the opportunity to preserve the material, which allows to repeat the measurements anytime and to add new parameters in later measurements.[3]

[1]Assistant Professor, Department of Anatomy, Ashiyan Medical College, Dhaka.
[2]Professor and Head, Department of Anatomy, Dhaka Medical College, Dhaka.
[3]Professor and Head, Department of Anatomy, Sir Salimulla Medical College, Dhaka.
[4]Assistant Professor, Department of Anatomy, Z M. Sikder Medical College, Dhaka.
[5]Assistant Professor, Department of Community Medicine Ashiyan, Medical College, Dhaka.
[6]Assistant Professor, Department of Anatomy, Ashiyan Medical College, Dhaka.
Correspondence: Dr. Israt Jahan Tania
E-mail: dr.israttania-@gmail.com)

Bangladesh J. Anat. 2017; 15(1) : 15-18

Growth and development of craniofacial structures are important as many clinical disciplines depend on it for understanding their developmental processes for diagnosis, timing and planning of treatment. The nasal index is very useful in anthropology as it is one of the clinical anthropometric parameters recognized in nasal surgery and medical management. The knowledge of nasal measurement is important to clinicians such as reconstruction of rhinoplasty and craniofacial surgeons enabling them in detection of normal or abnormal changes, assistance in diagnosis and planning of treatment.[4] It is also important tool in forensic science. The normal values of nasal parameters are vital measurements in the evaluation and diagnosis of craniofacial deformities.

Populations vary genetically and geographically in their craniofacial features. Therefore a single standard of anthropometric variable is not appropriate for being applied to diverse racial and ethnic groups. Though Bangladesh is a relatively small country, people of different religions and ethnic groups live here and these different groups have differences in their physical characteristics.[5] There are as many as 30 tribal communities living in different parts of Bangladesh .The Garos are one of them. The Garos are an ethnic group of 'Tibbeti Borman', belonging to the Mongolian human race. The face of the tribal (Garo) are round with deep eyebrows, small black eyes, short and flat nose and high jaws.[6]

In Bangladesh, studies on craniofacial measurements are limited to mostly on tribal population. There are very few comparative study between tribal and non-tribal Bangladeshi female. This type of study will be useful for researchers, clinicians and forensic experts especially in nasal surgery in respect to their field of studies.

Materials and Methods

The study was performed on one hundred adult tribal Garo female and one hundred non-tribal Bangladeshi female age ranging from 25 to 45 years of greater Mymensingh district.

Before going to measurement procedure subject was greeted politely. Then her national identity card was checked to confirm her age. After a short briefing on the objective of the present study, the subject was asked to give a voluntary consent on the consent form. Each subject was made seated comfortably on a chair. The digital camera was fixed on its stand at the same level of the study subject's head having a distance of 120 centimeter between the two. The face of each study subject was well illuminated and photograph was taken keeping the study subject looking straight to the camera, both eyes opened and mouth closed. Then the photograph of the subject was uploaded in the computer having program named Adobe Photoshop Version-8 and Adobe Illustrator Version-11. Nasal length was taken as the vertical distance from nasion to subnasale of the nose (Fig 1).[7]

Fig-1: *Showing photographic measurement of nasal length (n-sn), n- indicates nasion, sn- indicates subnasale.*

After collecting the data, the data was checked and edited. Later the data was statistically analyzed by a software package, SPSS for Windows (version 7.0). Statistical tests such as unpaired Student's't'test was done.

Statistical significance was accepted at p-value d" 0.05 ($p<0.05$).

Ethical Clearance:

The study was approval by the Institutional Ethics Committee of Sir Salimullah Medical College, Dhaka.

Bangladesh J. Anat. 2017; 15(1) : 15-18

Results:

Results of the study are expressed in Table 1 and Fig 1

Table-I

Nasal length of the study subjects

Group (n=100 in each group)	Nasal length in cm Mean±SD
Tribal (Garo) female	4.52±0.60 (3.38-5.55)
Non tribal female	5.18±1.01 (3.60-6.98)
p value	0.0001***

Figures in parentheses indicate range. Comparison between groups done by unpaired Student's 't' test, *** = significant at p<0.001

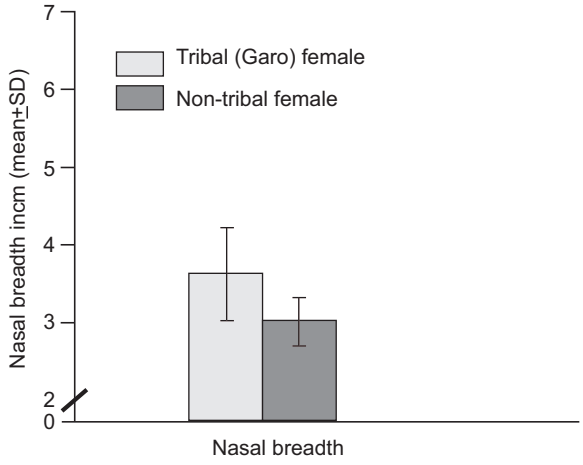

Fig-1: *Nasal breadth of the study subjects*

Discussion:

It has widely been recognized that craniofacial photo-anthropometry is affected by geographical, racial, ethnical, gender and age factors.

The selection of study area was on the basis of density of tribal population and was considered on the basis of same socioeconomic and nutritional status. Economic status is likely to influence the nutritional status of an individual and thereby may affect the facial dimensions. To minimize the possible effect of economic condition on the anthropometric data, female of same economic status were chosen for the present study.

Choe et al[8] worked on Korean American female and no significant (p>0.05) difference was observed in the mean value of nasal length when compared to the findings of the present study on tribal female as Korean American and Bangladeshi tribal belong to same Mongoloid race. Mostafa[9] conducted a study on adult Bangladeshi Buddhist Chakma females of mixed race and significant (p<0.001) difference was found when compared with the findings of the present study on non-tribal female. Farkas et al[10] carried out a study on Indian, Chinese of Singaporean, Vietnamese, Thai and Japanese. On comparison with the findings of the present study on tribal and non-tribal female the mean value of nasal length in Chinese of Singaporean, Thai,Vietnamese and Japanese were samilar but significant (p<0.001) difference were found in Indian female when compared with the findings of the present study on non- tribal female.

Conclusion:

The study revealed that the Significant (p<0.001) difference were found between tribal female (Garo) and non-tribal female in nasal length from 'nasion to subnasale'.

References:

1. Rajih and Khatib. Facial three dimensional surface imaging: Archives orofacial sciences. 2010; 5 (1):1-8.
2. Shrestha O, Bhattacharya S, Jha N, Dhungel S, Jha CB, Shrestha S, Shrestha U. Craniofacial anthropometric measurements among Raj and Limbu community of Sunsari District, Nepal: Nepal Medical College Journal. 2009;11 (3):183-85.
3. Choudhary A and Choudhary DS. Comparative Anthropometric Study of Nasal Parameters Between two Ethnic Groups of Rajasthan State:International Journal of Medicine and Public health. 2012;(2): 57-61.
4. Akhter Z, Banu MLA , Alam MM, Hossain S , Nazneen M. Photo anthropometric study on

Bangladesh J. Anat. 2017; 15(1) : 15-18

face among Garo adult females of Bangladesh: Bangladesh Medical Research Council Bulletin. 2013;39 (2) : 61-64.

5. Raji JM, Garba SH, Numan AI, Waziri MA, Maina MB. Morphological evaluation of head and face shape in a North Estern Nigerion Population: Australion Journal of Basic and applied Sciences. 2010; 4 (8):3338-41.
6. Das KT, Islam ZHMS. Psycho-social dimentions of ethnicity: The situation of Garo community in Bangladesh. Asian Affairs. 2005; 27(3): 45-54.
7. Kolar JC, Salter EM. Craniofacial anthropometry Practical measurements of the head and face for clinical, surgical and rescarch use: USA: Charles C Thomas publisher Ltd, Springfield, Illionis;1996.
8. Kyle S Choe, Haresh R Yalamanchili, Jason A Litner, Anthony P, Sclafani, Vito C Quatela. The Korean American woman's nose and in depth nasal photogrammatic analysis: Archives of facial plastic surgery. 2006;8: 319-23.
9. Asma Mostafa, Laila Anjuman Banu, Fashiur Rahman, and Sudip Paul. Craniofacial profile of adult Bangladeshi Buddhist Chakma female Journal of Anthropology. 2013; 4(1): 1-7.
10. Farkas GL, Katic JM and Forrest RC. International Anthropometric Study of Facial Morphology in Various Ethnic Groups/Races: The Journal of Craniofacial Surgery. 2005;16 (4): 615-45.