

Study of Facial Index in both sexes of Northern Maharashtra

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Abstract

Background: Face is an entity that helps to distinguish one person from another. It also signifies distinction between races, ethnic groups, Sexes and even members of same family. Hence it has anthropological, anatomical and medico legal importance.

Method: 60 adult males and 60 adults females aged between 18 to 35 were studied with spreading calliper, Facial Index was measured from Nasion to Gnathion, Zygion to zygion

Results: The male facial Index was 90.5 (± 0.5) and female was 87.2 (± 0.3) ($p < 0.001$) p value was highly significant. The present Facial Index was classified anthropologically under Lepto prosopic facial Index.

Conclusion: Present Facial Index of Maharashtra Population is useful to anthropologist, anatomist and medico legal expert to differentiate Maharashtra population from other racial or ethnic groups of India and abroad because morpho-metric values of mesoderm derivatives are un-certain.

Keywords: Spreading calliper, Sliding calliper, laptoproscopic, Anthropological, Medico-legal

Introduction

Study of facial Index has always has always has an interesting topic for anatomist, plastic surgeons, oral and maxillo facial surgeon and artist. Physical anthropologist have been measuring the skull for years and obtained the results enabled them to trace the relationship between the races as they believe that, the form of skull remain the same in each race and different facial index ⁽¹⁾, the indices express the ratio of landmarks of an individual facial index is measurement related to the morpho-metric study of skull ⁽²⁾, moreover age, sex, geographical representation can be studied from facial index ⁽³⁾

⁽⁴⁾. In addition to this congenital, post traumatic facial disfigures can be rectified by the maxillofacial surgeon with the help of regional facial Index. Hence attempt was made to study the facial Index in both sexes of adults in Maharashtra to know the difference between genders and compare with North Indian and Abroad Facial indices.

Material and Methods

60 adults males and 60 females healthy volunteers aged between 18 to 35 years visited to ACPM Medical college hospital Dhule-424002 (Maharashtra) were studied.

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Inclusive Criteria: Healthy, robust having ideal body mass Index were selected for study.

Exclusion Criteria: The volunteers having apparent physical deformities were excluded from study.

Methods

$$\text{Facial Index} = \frac{\text{Facial height}}{\text{Breath of zygomatic arch}} \times 100$$

1. Facial measurement were as under
2. Nasion = point at the nasal root intersected by mid sagital plane Nasal root is the depression of the nose but at the naso frontal suture which can be felt by slightly probing the root of the nose
3. Gnathion – It is the lowest point on the lower margin of lower jaw intersected by the mid-sagital plane. This point can be palpated on the lower jaw slightly another to chin
4. Zygion –It is the most laterally placed point on zygomatic arch
5. Total Facial Height –It measure the straight distance between Nasion to Gnathion (measured by sliding caliper)

6. Breath of Bizygomatic Arch –It measure straight distance between two zygon (measured by spreading caliper).

Duration of study Feburary-2021 to March-2022

Statistical analysis: Facial Index of both Male and female was compared with t test value and noted. The statistical analysis was carried out in SPSS software.

Observation and Results

Table 1: Comparative study of Facial in both sexes Facial 90.5 (± 0.5) was male index, 87.2 (± 0.3) was female facial Index, t test was 4.38 and p<0.001 (p value was highly significant)

Table 2: As per the anthropological classification of Facial Index. The present values of facial Index were classified under Leptoprosopic Facial Index (males 88 to 92.9 and Females 85 to 89.9).

Table 3: The present study of Facial Index was compared with previous studies of different ethnic groups of India and abroad.

Table 1. Comparative study of Facial Index in both sexes

Male-60, Female-60

Sl. No	Particulars	Male Facial Index	Female Facial Index	p value
1	Mean Value	90.5	87.2	P<0.01
2	SD	0.5	0.3	
3	t test	43.8		

Male Facial Index in more in male than female facial Index and p value is highly significant (P<0.01)

Table 2. Classification of Facial Index

Sl. No	Facial Type	Male	Female
1	Hyper Euryproscopic	78.9	76.9
2	Euryproscopic	79 to 83.9	77 to 80.9
3	Meso Proscopic	84 to 87.9	81 to 84.9
4	Leptoprosopic	88 to 92.9	85 to 89.9
5	Hyperlepto-proscopic	93	90 -

The present study of Northern Maharashtra has male facial Index was 90.5 (SD ±0.5) and female 87.2 (SD±0.3) belong to leptoprosopic

Table 3. Present study of Facial Index in both sexes is compared with previous studies

Sl. No	Author & Year	Ethnic Groups	Male Facial Index	Female Facial Index
1	Mahesh Kumar -2013	Hariyanvi	84.84	68.09
2	Zohre abatabae- 2010	Yazd	108.3	106.9
3	Agron Rexhepi-2008	Kosov	91.38	90.27
4	Vaishali Shetti -2011	a)North Indian	87.19	86.75
		b) Malaysian	87.71	85.72
5	Venkateshwar Rao 2018	South Indian	91.5	88.1
6	Present Study	Maharashtra	90.5	87.2

Present study findings were more or less in agreement with previous studies.

Discussion

Present study of Facial Index in both sexes of northern Maharashtra. Male facial Index Mean values was 90.5 (± 0.5) female facial Index was 87.2 (± 0.3), t test was 43.8 and $p < 0.001$ (P value was highly significant) (Table-1). As per the anthropological classification of Facial Index the present finding are under leptoprosopic Facial Index (88 to 92.9 in males, 85 to 89 females (Table-2). These findings are more or less in agreement with previous studies ⁽⁵⁾⁽⁶⁾⁽⁷⁾.

The study of sexual dimorphism is an important concern for the forensic anthropologist as it is a key to individual identification; Assessing sexual dimorphism eliminates approximately half of the population from further consideration in cases of missing persons or unknown identity. Many morphological differences are sex is specific. The specificity is due to genetic factors, nutritional growth and habitat ⁽⁸⁾. This difference leads to ethnic determination.

In North Indian and Punjab population has mesoprosopic facial Index this variation is due to migration of Iran population to India⁽⁹⁾ and west Bengal population has euryscopic type of facial Index and Andaman Nicobar population has hypereuryprosopic type of facial Index ⁽¹⁰⁾. These variations in the facial Index represents various ethnic origins migrated to India.

Summary and Conclusion

The present study of Facial Index in both sexes of adults Maharashtra population which has

leptoprosopic Facial Index. This Index is of great importance in medico legal, anthropological and oral maxillofacial surgeon, anatomist but this study demands further genetic, anthropological, nutritional study because as bony skull is mesodermal origin and bone is most plastic tissue which adopts with environmental, nutritional status.

Limitation of Study: Due to tertiary location of research centre, small number of patients, lack of latest techniques, we have limited findings and results.

This research paper was approved by Ethical committee of ACPM Medical College hospital Dhule-424002 (Maharashtra)

Conflict of Interest: No

Funding: No

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