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Original Research Article

To Obtain Standard Anthropometric Measurements of the Faces of Young Adults Aged 18-26 Years and to Correlate with Their Personality Traits

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Abstract

Background & Method: This study aims to obtain standard anthropometric measurements of the face of young adults aged 18-26 years and to correlate them with their personality traits. The measuring procedure was explained to each participant clearly to eliminate the participant's anxiety. The participants were asked to sit in a chair in a relaxed state with the head in a resting position. The resting position is determined by the individual's feeling about the average balance of the head. When taking measurements of the eyes and mouth, it was resting closed when it was measured.

Result: Among the study participants, the majority of them were aged 19 years. The meane is 20.04 years. Among the study participants, the majority were Females.

Conclusion: The present study was done on 105 individuals aged 18-26 to evaluate the anthropometric measurement of the face and to correlate with his/her personality traits. The anthropometric parameters viz., Craniofacial height, Face Height, Intercanthal width, Total lip height, Lower vermilion height, Chin heightist, and Mouth width are highly sexually dimorphic. There is no correlation between personality traits Neuroticism and Extroversion/Introversion with face morphology.

Keywords: Anthropometric, Young, Personality & Traits.

Introduction

Anthropometry or Anthropometrics is the study that involves the systematic collection and correlation of various physical body measurements. Anthropometry is the science of measurements and deals with varied parameters like weight, size, and magnitudes of the physical body, as long as valuable and objective insights into the way to characterize phenotypic variation and dysmorphology [1]. The word 'Anthropometry' is derived from two Greek words, 'Anthropos' means human and 'Metric' means Measure. The French naturalist George Cuvier coined the word 'Anthropometry'.

Craniofacial Anthropometry may be a part of the morphometric tools utilized in clinical applications. The facial anthropometric analysis is a technique that

yields accurate soft tissue measurements of the Face [2]. It has been used to define soft tissue relationships and standards for objective facial analysis. It plays an important role primarily in orthodontic procedures, and surgical rejuvenation of the Face [3]. It also serves as an essential tool in showing patterns of variation in specific genetic syndromes like Crouzon and Alpert syndrome. It also features a pivotal role in forensic medicine in identifying an unknown person. Normative data of facial measurements are indispensable for the precise determination of the degree of deviation from the expected [4].

The study of facial morphology is predicated on these landmarks. Some landmarks are unilateral and a few are bilateral. Andres Retzius, a Swedish anatomist, was the first to introduce the cephalic index concept, where direct measurements were converted into an index without a measurement unit to form a comparison possible and eliminate the effect of absolute size. An index is a relationship between two dimensions. Indices make different groups of individuals be compared efficiently and meaningfully [5]. Direct Anthropometry is inexpensive and more reliable than other methods. It is done by using a ruler, sliding, or spreading callipers. Despite its simplicity, it is not used routinely because it is time-consuming, and the measurements can be taken with the subject present. Indirect Anthropometry can be two-dimensional (2D) or three-dimensional (3D). Two-dimensional techniques include Photogrammetry and Cephalometry.

Material & Method

The study is done at Amaltas Institute of Medical Sciences, Dewas, M.P. from the department of Anatomy conducted on (n) 105 young adults (both male and female). The measuring procedure was explained to each participant clearly to eliminate the participant's anxiety. The participants were asked to sit in a chair in a relaxed state with the head in a resting position. The resting position is determined by the individual's feeling about the average balance of the head. When taking measurements of the eyes and mouth, it was resting closed when it was measured.

Landmarks were accurately marked first on the Face using a skin marking pencil; then, the measurements were taken using a digital calliper or measuring tape accordingly. A single Investigator carried out all measurements, and the measurements were repeated twice for each participant to ensure accuracy.

Inclusion Criteria:

1. Age between 18-26 years of both sexes (Male and female) (Age is chosen between 18-26 years because growth is stable during this period).
2. Able to read, comprehend and respond in the English language.

Exclusion Criteria:

1. Having any congenital craniofacial deformity.
2. History of previous plastic or reconstructive surgery of the Face.
3. History of the significant trauma in the orofacial and cranial regions.
4. Noticeable facial disfigurement.
5. Mental retardation.
6. Persons having mixed ethnic origin.

Results

Table 1: Age distribution of study participants.

Age In (Years)	Frequency (N)	Percentage (%)
18 years	07	6.6
19 years	34	32.3
20 years	32	30.4
21 years	19	18.0

22 years	06	5.7
23 years	03	2.8
24 years	02	1.9
25 years	01	0.9
26 years	01	0.9

Among the study participants, the majority of them were aged 19 years. The mean age is 20.04 years.

Table 2: Gender distribution of study participants.

Gender	Frequency(N)	Percentage (%)
Male	49	46.6
Female	56	53.4

Among the study participants, the majority were Females.

Table 3: Mean and standard deviation of anthropometric parameters of a craniofacial complex of study participants

Parameters of Craniofacial Complex	Mean	S. D.	Min.	Max.
Craniofacial height	31.04	38.49	19.20	38.51
Forehead height	**60.87**	**08.17**	**40.90**	**85.60**
Face height	107.2	09.68	90.12	133.09
Face width	111.5	11.94	85.00	140.65
Forehead size index	19.82	3.164	11.84	33.18
Facial index	**96.49**	**11.18**	**74.60**	**125.88**

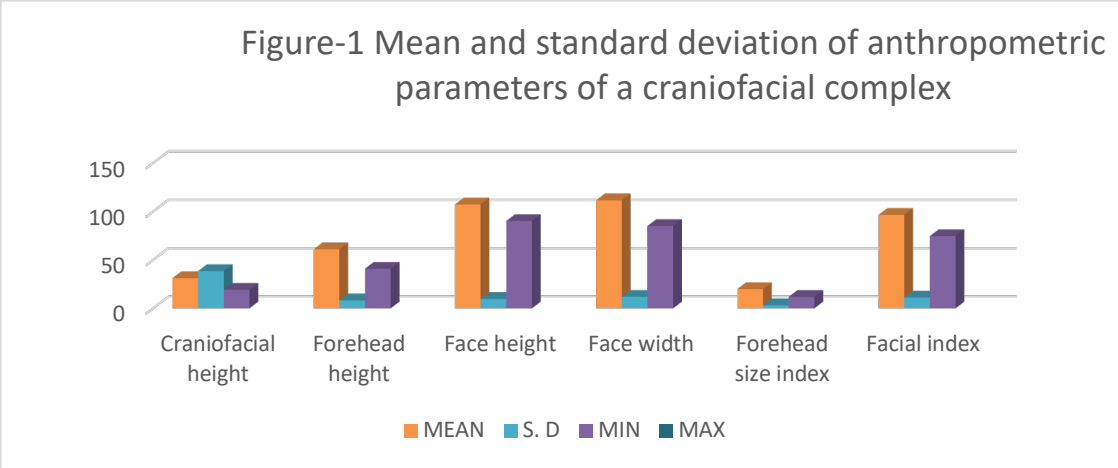

Figure 1: Mean and standard deviation of anthropometric parameters of craniofacial complex

Table 4: Frequency and percentage-wise distribution of the personality trait of study participants.

S. N.	Personality Trait	Frequency (N)	Percentage (%)
1.	**Psychoticism**		
	High	1	0.5
	Mild	71	33.6
	Nil significant	139	65.9
Mean of Psychoticism		7.223+2.905	
1.	**Extraversion/Ambiversion/Introversion**		
	Ambiversion	124	58.8
	Extraversion	72	34.1
	Introversion	15	7.1
	Mean of E/A/I	13.09+2.935	
2.	**Neuroticism**		
	High	91	43.1
	Medium	82	38.9
	Nil significant	38	18
Mean of Neuroticism		13.31+4.601	

In Psychoticism, nil significance is 139 (65.9%) and the mean of Psychoticism is 7.223. In extraversion/Ambiversion/introversion, Ambiversion 124 (58.8%) and the mean of E/A/I is 13.09. In Neuroticism, the high 91 (43.1%) and the mean of Neuroticism is 13.31 respectively.

Discussion

Malaysian South Indian ethnic adults found that the outer canthal distance was 97.15 mm in males and 91.78 mm in females, which was lower than the present study. Moreover, they also noted Intercanthal distance and canthal index to be 34.1 mm and 35.22 in males, 32.77 mm, and 35.86 in females. These values are very high compared to the values of the present study [6]. They have observed sexual dimorphism in all parameters, whereas in the present study, there is significant sexual dimorphism in Intercanthal distance only [7].

The values of outer canthal distance found in the present study were higher than the normative value found by NAWCs. At the same time, the inner canthal distance was lower.

The present study values for outer canthal distance were higher than and values for inner canthal distance were less than that of. However, in their findings, both OCD and ICD were sexually dimorphic, whereas, in our study, only ICD is sexually dimorphic.

A study reported that in 78% of adults, the ICD is attained by the age of 1 year, after which the growth in this area is slow in contrast to the outer orbital dimension. The canthal values are established by 6–8 years of age and do not change significantly after this time. This stable landmark can be accurately identified, located, and measured [8].

Average canthal distance values help and serve as a guide to diagnose the pathologies and for early surgical intervention. [9] Knowledge of subtle morphological changes in Dimorphic syndromes diagnosed based on molecular and cytogenetic techniques will help the functional diagnostic test.

Conclusion

The present study was done on 105 individuals aged 18-26 years to evaluate the anthropometric measurements of the face and to correlate with his/her personality

traits. The anthropometric parameters viz., Craniofacial height, Face Height, Intercanthal width, Total lip height, Lower vermilion height, Chin height, and Mouth width are highly sexually dimorphic. There is no correlation between personality traits Neuroticism and Extroversion/Ambiversion/Introversion with face morphology.

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