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Study to identify the effect of height and weight in the prosopic (Facial) Index between male and female of Central India with Its clinical Importance

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Abstract:

Background: Craniofacial anthropometry is a method that is used to identify the morphological aspects of the head and face. **Aim:** The aim of the present study was to identify effect of height and weight in the prosopic (Facial) Index between male and female of Central India with Its clinical Importance. **Materials & methods:** A random sample of 400 students (200 males and 200 females) between the ages of 18 and 25 was taken after first obtaining approval from the ethical committee of the institution and then obtaining the participants' informed consent to take part in the study. The participants were given full disclosure regarding the nature of the study. The examination of these students did not take place until after they had provided their informed agreement to take part in the research. Everyone who agreed to take part in the study was in generally good health, and not a single one of them had ever previously undergone plastic or reconstructive surgery to treat facial deformities or injuries in the past. **Results:** Male have shown Hypereuriprosopic for 10 %, Euriprosopic for 26 %, Mesoprosopic for 49 %, Leptoprosopic for 10 %, and Hyperleprosopic for 5 % but none have shown significant differences when compared between the two groups of any two facial indices. The present study did not observe any significant difference when compared between the height and weight with the prosopic facial indexes of the both the genders respectively. **Conclusion:** A large number of people, ideally from all around the country, would need to participate in similar research in order to improve the precision of projections. As a result, the above problems will feel less weighty.

Introduction:

Craniofacial anthropometry is a method that is used to identify the morphological aspects of the head and face. The name of this approach comes from the combination of the words "cranio" and "facial," hence it is also known as "cranial facial anthropometry." Craniofacial anthropometry is a method that first came into being in the 1960s [1-6]. A person's facial structure can be affected by a wide variety of elements, including their gender, race and ethnicity, surroundings, degree of socioeconomic standing, level of education, the foods they consume, as well as their genetics

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[5,6]. These are only some of the many different aspects that might play a part. The facial parameters are used for evaluation in order to assist in the diagnosis of a wide variety of congenital malformations and injuries to the face, as well as congenital and traumatic deformities of the face [7-12]. In addition, the facial parameters are used to assist in the treatment of patients who have been diagnosed with one of these conditions. In addition, the facial characteristics are used so that they might be of assistance in the treatment of congenital and traumatic facial malformations. In addition, irregularities of the face can be analysed with the help of characteristics associated with the face [13]. The information that was acquired can be utilised in reconstructive face surgery, as well as in the domains of anthropology and forensic medicine, where it can be utilised to determine racial and sexual distinctions [14]. In addition, the information can be utilised in reconstructive face surgery. In addition, the data can be put to use in surgical procedures that correct facial deformities. In addition, the information can be utilised in surgical operations that are intended to rectify face abnormalities [15]. Currently, everyone on Earth is considered a member of the Homo sapiens species. Because their development is influenced by environmental factors, even monozygotic twins will behave and look slightly differently. These characteristics can change and develop from the time a person is born until they die due to a variety of factors such as the environment, region, biology, race, gender, and age [16-30].

Since craniofacial morphology develops differently across racial and ethnic lines, the Facial (Proscopic) index is a useful anthropological parameter for classifying human populations, therefore the aim of the present study was to identify effect of height and weight in the prosopic (Facial) Index between male and female of Central India with Its clinical Importance.

Materials & methods:

After receiving clearance from the institution's ethical committee and gaining the participants' informed agreement, a random sample of 400 students (200 males and 200 females) between the ages of 18 and 25 was taken. All pertinent details about the study's purpose were shared with the participants. These pupils were not examined until after they had given their consent to participate in the study. All of the volunteers were in good health and had never had any kind of facial surgery for anything other than cosmetic reasons. The goal of the research was to learn how people who had undergone surgical operations felt afterward. Furthermore, not one of them has ever demonstrated even the slightest curiosity in helping with the research.

The total face index for each participant is determined using the method proposed by Hooten [16] and the data obtained from this study. For this index, the subject's profile picture is particularly important. Participants were given extensive instructions before the experiment began, instructing them to sit in a comfortable position with their lips closed and their teeth in a centrally occluded position. In addition, participants were told to keep their eyes shut for the duration of the study. They were also instructed to keep their eyes shut for the duration of the procedure. This was supposed to be completed before the trial began. All measurements were taken to within one millimetre after palpating the cranium to locate important anatomical

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landmarks. This was done before any measurements were taken. All of this was completed before we ever looked at the measurements.

Sliding and spreading callipers were used to measure the face height from the Nasion to the Menton. The distance from Nasion to Menton was measured with these rulers. An precise measurement of the face's height from the Nasion to the Menton required the use of the sliding calliper. The purpose of this was to gather precise data on the angle in question. Using the spreading calliper, we were able to determine the exact distance in millimetres between the Zygion on either side of the face.

Statistical analysis:

Calculations performed to determine constants for various male and female facial measurements. The Mean, Standard Deviation, and Z-value for each individual measurement are all included here.

Results:

Table 1 shows the distribution of facial indices in males. Male have shown Hypereuriprosopic for 10 %, Euriprosopic for 26 %, Mesoprosopic for 49 %, Leptoprosopic for 10 %, and Hyperleprosopic for 5 % but none have shown significant differences when compared between the two groups of any two facial indices.

Table 1: Differences between genders in the distribution of facial indices

Gender	Female,(n=200)		Total
	Height (cm)	Weight (Kg)	
Hypereuriprosopic	162	79	29
Euriprosopic	158	81	67
Mesoprosopic	167	83	87
Leptoprosopic	164	84	11
Hyperleprosopic	167	80	6

It is more common for females to have the Euriprosopic facial type (n = 118) and the Hypereuriprosopic facial type (n = 50), whereas males are more likely to have the Mesoprosopic facial type (n = 184), the Leptoprosopic facial type (n = 32), and the Hyperleptoprosopic facial type (n = 16). Table also shows the distribution of males in the facial indices. Male have shown Hypereuriprosopic for 10 %, Euriprosopic for 26 %, Mesoprosopic for 49 %, Leptoprosopic for 10 %, and Hyperleprosopic for 5 %.

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Table 2: Differences in the distribution of facial indices in males

Gender	Male (n=200)		Total
	Height (cm)	Weight (Kg)	
Hypereuriprosopic	177	86	21
Euriprosopic	181	89	51
Mesoprosopic	179	82	97
Leptoprosopic	183	81	21
Hyperleprosopic	176	79	10

Gender	Male (n=200)	Female (n=200)	Total
Hypereuriprosopic	21	29	50
Euriprosopic	51	67	118
Mesoprosopic	97	87	184
Leptoprosopic	21	11	32
Hyperleprosopic	10	6	16

Table 3: Differences in females in the distribution of facial indices

Table 3 shows the distribution of facial indices in the females. Female have shown Hypereuriprosopic for 15 %, Euriprosopic for 33 %, Mesoprosopic for 43 %, Leptoprosopic for 6 %, and Hyperleprosopic for 3 % but none have shown significant differences when compared between the two groups of any two facial indices.

The present study did not observe any significant difference when compared between the height and weight with the prosopic facial indexes of the both the genders respectively.

Discussion:

Our study found lower morphological face height values than those found in the Indian population (130.02 mm 5.79) and the American population (141.15 mm 7.5 in men and 141.29 mm 7.6 in females) [27,28].

The average morphological facial height of adult Egyptian men was 121.1 mm 0.41, which is lower than the results of our study (121.42 mm 5.79). Egyptian women likewise had higher than

average parameter values (111.5 mm 0.68), according to their study (110.84 mm 5.69). (121.42 mm 5.79) [29].

Our study found a significantly lower mean value of morphological facial height than studies of other anthropometric characteristics of the Lithuanian population (120,8 mm) [30], Caucasian population (white race) (120,9 mm) [31], Brazilian Indians (125,7 mm) [32], and the Chinese population (125,8 mm) [33].

Compared to a survey of West Africans, where the average morphological face height was 108.4 mm, our study indicated that the average morphological face height was 116.28 mm 7.28 mm [34].

The study's findings suggest that the leptoprosopic facial phenotype is more prevalent in the country's central region. Many disciplines, including forensics, medicine, genetics research, and anthropology, could benefit from our study's findings (reconstructive surgery).

The face index values of the participants in this study ranged from 94 to 190 overall millimetres. These figures were extremely different from one another. This occurred because there was a large variance in the sample's responses. Following the euryprosopic face is the leptoprosopic face, and finally the mesoprosopic face. The sizes for males rose from 98 to 190 millimetres, and the sizes for women went from 94 to 187 millimetres. Mesoprosopic faces were found to be more common in women than in men, and Leptoprosopic faces were found to be more common in males when the facial index of men and women was compared. However, there was no statistically significant difference between the two groups ($p>0.001$). Facial characteristics associated with mesoprosopy were found to be more prevalent in females than males. Leptoprosopic faces were observed to be more frequent in males than females. Meiropsopic facial features were found to be more prevalent in females than males. Leptoprosopic facial characteristics were more prevalent in males. A man's face is typically about 190 millimetres (mm) taller than a woman's. To perceive this distinction in face features, for instance (187 mm). Men (122 mm) and women (121,4 mm) have both increased their height over the past few decades, according to research by Jeremic et al. [35]. Individuals of all ages were exposed to it (110,8 mm). Leptoprosopic faces made up 81.7% of all faces, followed by mesoprosopic faces at 14.28% and hyperleptoprosopic faces at just 4%. Contrary to our expectations, hyperleptoprosopic faces were among the rarest of all facial variations we examined. One research comparing Haryanvi Banias found the following physical traits in 2013: Mesoprosopic features were most common among men, followed by euryprosopic, and finally leptoprosopic ones. Compared to leptoprosopic, hyperleptoprosopic, euryprosopic, and euryprosopic faces, mesoprosopic faces were more common in females. This research's male population had a mean value that was lower than that discovered in studies of Albanians, Andhras, and Indians, but greater than that found in studies of Onges and Malay people [17]. It was also the same as that reported in a study of the Indian population by Singh and Bhasin. They focused in especially on Indians. This research was conducted in India with the hopes that it might be of some value to the local population. Studies of the same population have indicated that Haryanvi Banias girls have a significantly lower mean face index than females in other populations. The Turkman and

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Fars populations were discovered to have a preponderance of hypereuryprosopic faces, while leptoprosopic faces were reported to be uncommon. The results presented here are supported by the proof provided in [36]. Interestingly, this was a shared characteristic across the two groups. Ongoing studies have disproved all of these hypotheses about the most prevalent facial shape. Among Baluchi and Sistani women aged 18 to 25, the study indicated that Euryprosopic was the most prevalent facial type and Hyperleptoprosopic was the least common. The research was conducted by scientists from the [37] group. Our research findings corroborate this interpretation. According to research [38], leptoprosopic face types are more common among men, whereas hyperleptoprosopic face types are more common among women. Having a leptoprosopic face appears to be more common in men than in women. This may be because, on average, men have higher cheekbones than women, which contributes to the problem. It was revealed that the euryprosopic face type was the most common in both sexes, while the hypereuryprosopic face type was the rarest. This outcome was unexpected because it ran counter to our analysis. Despite the fact that both Fars and Ark were hypereuryprosopic, research conducted by Raji et al. [39] indicated that hyperleptoprosopic facial features were more common than hypereuryprosopic ones in northeastern Nigeria, and that both sexes were equally afflicted. This was demonstrated by both hyperleptoprosopic and hypereuryprosopic characteristics. The majority of Chinese men have leptoprosopic traits, while the majority of Chinese women have mesoprosopic features, as shown by study from [40]. Individual Chinese participants were employed in this research. Men often have shorter faces because their facial height index is significantly lower than that of women. Since men's faces have greater room to expand with time than women's do, men often have longer faces than women do. However, men's faces are typically more elongated than women's.

Study results showed that the canine Class II association was the most common, followed by the canine Class I relationship and the face index. Women outnumbered men 2-to-1 for both sexes. In addition, the face index was identified as the primary element in this association. Not only that, but the face index was the most typical indicator of this connection. We analysed the dynamics of canine friendships and the differences between male and female partnerships. Class II prevalence was found to be marginally, but considerably, greater in men than in women and other men. This was true despite the fact that men constituted a disproportionate share of the sample. According to the findings, this was the most crucial piece of information.

No matter the facial appearance, a Class I canine connection was found to be the most common in one study [41]. The data suggests that euryprosopic faces predominate in the population. This general face shape is very common. This conclusion was reached after looking at the correlations between different dog breeds and physical characteristics. Class II and class III were more prevalent in females when comparing both sexes. The number of attendees never changed this. This was true regardless of the person's sex (p0.05). Results from this previous study were unrelated to those of the current investigation. Among a sample of Indians, most had the Euryprosopic face type, according to research conducted in 2017 [43]. This investigation's findings will be published in Scientific Reports. Here's what we can conclude from the study's

findings. The next three most common facial characteristics were hypereuryprosopic (19%), leptoprosopic (5.6%), and hyperleptoprosopic (0.6%). Men and women both had more Class I contacts with dogs, but women also had more Class II and Class III encounters. Based on studies [43], it appears that the Ark, the Fars, and the Turkmen all share a similar facial structure.

Conclusion:

This study suggests that the most common facial profile has evolved over time and across geographic locations inside and between countries. The results of this study should be considered preliminary, as only 400 participants participated. A large number of people, ideally from all around the country, would need to participate in similar research in order to improve the precision of projections. As a result, the above problems will feel less weighty.

Conflict of interest:

None declared.

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