



# Farkas Indices- Facial Anthropometry, Key To Identify Aggression In School Going Children Of India: A Review

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## ARTICLE INFO

## ABSTRACT

### Abstract

Facial anthropometry deals with the dimensions of face which can be major markers for the identification of several behavioral traits. This study mainly focused upon the facial landmarks of Farka's by which the way of demarking various behavioral patterns can be done. Many studies have evidenced the same whereas more longitudinal aspects to be pointed out for innovative future interventions.

**Keywords:** anthropometry, aggression, facial anthropometry, farka's landmark, Palm indices

## INTRODUCTION

Craniofacial indices or the facial anthropometric markers are always in a wide help for many reasons like: designing, orthodontic requirements, cosmetic surgery, trait identification along with behavior analysis. The parameters and the landmarks of face used to vary depending upon the age, gender and ethnicity. There are many parameters which have already been invented in assessment of various behavioral traits like face height, britageon breadth, distance between endocanthion and exocanthion, various facial angles like mento cervical angle etc. It has been observed that craniofacial markers of scientist Farkas (Deutsch, 2012) are mainly identified to assess some of the dominant behavioral features like rage, anger, hostility, hyperkinetic attitude etc.

The principle biochemical markers are also found instrumental to those facial landmarks and support the fact that those facial markers can be said as exogenous potential markers for aggression among pre and post pubertal children at least in this part of world. Aggression is a kind of behavior that ensures violence, cruelty, vulgarity, antagonism, antagonism leads to promote tendency harming self or others. This also led to indulge antisocial activity that cause extreme damage to the society and also become fatal for the mankind. In this particular review the prime focus has been put upon the markers that can be prominent and dominant in identification of aggression within younger Indian population, as they are the future of the nation and can be immense threat of the globe.

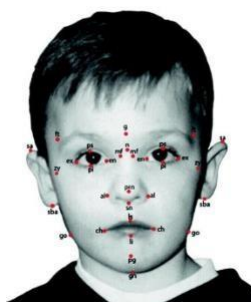


Fig 1: Farkas Landmarks. (1)

## LITERATURE REVIEW

In this particular study the focus is pertained upon the population of India and the studies which were performed in this part. There are very few researches were found which tried to bridge up the endogenous factors responsible for aggression with anthropometry and sound as the key exogenous markers for aggression amongst the pre and post pubertal school going children.

### • Crimes and evidences in children:

The rate of crime amongst the children has increased in many folds at every part of the world. The reason of which are said as poor rate of literacy, poor social economic conditions, lack of acceptance by the society and many more. There are many evidences present which showed that children at upper primary age are more prone to commence theft and dacoit out of rage, habit or economical stringency. From the year of 1995 till date rate of juvenile murder has raised up to twenty folds (Agarwal, 2018). In a report published by NCRB it has been found that the crimes were placed in a more matured manner now these days than early days by the young minds. Even the tendency of suicide is also increased by the children than that of the adults (Wallner, 2012)

### • National status of identifying aggression among the children by facial anthropometry:

In a study it has been showed that pre pubertal growth can be assessed by facial anthropometry and can be milestones in analyzing behavior or changing behavior (Magdalena, 2014) Testosterone is the hormone responsible for aggression amongst the male population even in the children and the anthropometric parameter 2D and 4D ratio is said to be responsible for supporting the level of testosterone. Even the chelion a Farka's landmark had already shown similar effect like 2D/4D ratio (Zhangh, 2009) With extended study of several biomarkers corticosterone come out from the groove, at potentially subjected to increase or decrease stress amongst the person. Whereas initiation of stress brings up several other psychological abnormalities like; anxiety, depression and in further aggression. So it can be said that corticosterone is another potential biomarker for aggression analysis followed by stress analysis (Caparros-2018). Several causes of stress can be unfolded from pre-puberty, which in the growing age may convert into vulgarity. There are multiple reasons may be figured out behind this growing trend of aggression like: lack of sufficient food, lack of education, economical discrimination and most importantly non-fulfillment of any kind of desires can develop rage in an individual from their pre-adolescence (Pelin, 2020). Psychological stress can be determined by altered level of cortisol. Lower cortisol levels increase stress level and the tendency of hyperkinetic behavior (Gülen, 2021). Various aggression subdomains like hostility, anger, physical aggression and verbal aggressions can be correlated with various facial landmarks and are yet to be more researched as well as confirmed longitudinally (Majumder, 2018). In another cross sectional research on athletic children it has been found that the facial anthropometric parameters like Farka's Landmarks are quite relevant and well supportive in assuring hyperkinetic behaviour both in positive and negative way amongst the experimental group of subjects (Pandeya, 2018). Among many parameters ear height width ratio and angle with ear said as ear inclination joint is once again said as potential marker to identify gender (Murgod, 2013). Another study revealed that fast growing children showing comparatively less alterations in facial dimensions among them so as less cognitive vulnerabilities are observed (Ariyaratne, 2010). In a study of facial pattern recognition on Indo- Nepalese, Indigenous and Tibeto- Nepalese population (2015), it is found that the facial landmarks vary upon several factors like age, race gender and ethnicity. Depending upon these factors some have showed mesoprosopic and leptoprosopic kind to faces by seeing which the geographical demonstrations can be easily identified (Koirala, 2019) In an AI based study of north east-indian population it was identified that the criminological tendencies can be predicted by the exogenous markers of face in the teenage population, which contributes the age group of post puberty (Bhowmik, 2019). Facial anthropometry especially Farkas Landmarks, can be symbolic in many ways not only to assess behavioral propensity but also to find out the tendencies of emotional vulnerability with growing age. Similarly other anthropometric indices like finger digit ratio can be another novel marker found for aggression emerging with the gender (Majumder, 2020).

## CONCLUSION

More research and practices on pre and post pubertal age group for identifying various traits of aggression can be an eye opener to the society. Especially children who are the future of nation to be groomed with satisfactory requirements and taught kindness for developing violence free globe.

## References:

1. Deutsch, C.K., Shell, A.R., Francis, R.W., Bird, B.D. (2012). The Farkas System of Craniofacial Anthropometry: Methodology and Normative Databases. In: Preedy, V. (eds) Handbook of Anthropometry. Springer, New York, NY. [https://doi.org/10.1007/978-1-4419-1788-1\\_29](https://doi.org/10.1007/978-1-4419-1788-1_29)
2. Agarwal, D. (2018). Juvenile Delinquency In India- Latest Trends And Entailing Amendments In Juvenile Justice Act. People: International Journal Of Social Sciences , 3(3), 1365-1383

3. Meindl K, Windhager S, Wallner B, Schaefer K. Second-to-fourth digit ratio and facial shape in boys: the lower the digit ratio, the more robust the face. *Proceedings of the Royal Society B: Biological Sciences*. 2012 Feb 15;279(1737):2457-63.
4. Magdalena Klimek<sup>1</sup>, Andrzej Galbarczyk<sup>1</sup>, Ilona Nenko<sup>1,2</sup>, Louis Calistro Alvarado<sup>3</sup>, and Grazyna Jasienska, "Digit ratio (2D:4D) as an indicator of body size, testosterone concentration and number of children in human males", *Ann Hum Biol*, Early Online: 1–6, 2014 Informa UK Ltd. DOI: 10.3109/03014460.2014.902993
5. Yu Zhange and Edmond C. Prakash , Face to Face: Anthropometry –Based Interactive Face Shape modeling Using Model Priors, *International Journal of Computer games technology Volume (2009); (19-22)*
6. Caparros-Gonzalez RA, Romero-Gonzalez B, Strivens-Vilchez H, Gonzalez-Perez R, Martinez-Augustin O, Peralta-Ramirez MI. Hair cortisol levels, psychological stress and psychopathological symptoms as predictors of postpartum depression. *PloS one*. 2017 Aug 28;12 (8):e0182817.
7. Gülçen B, Pelin İC, Özener EB. The craniofacial indicators of aggression: a cross-sectional multiparametric anthropometry study. *Folia Morphologica*. 2020 Apr 10.
8. Gülçen, B., Pelin, İ. C., & Özener, E. B. (2021). The craniofacial indicators of aggression: a cross-sectional multi-parametric anthropometry study. *Folia Morphologica*, 80(1), 55-62.
9. Ghosh, S., Majumder, T., Mondal, G. K., Bagchi, A., Das, S. S., & Gangopadhyay, S. (2018). Perceiving propensity for aggression analyzing facial anthropometry, FWHR & lung function parameters amongst children of athletic and non-athletic types in West Bengal. *World Journal for Pharmaceutical Research*.
10. Pandeya A, Atreya A. Variations in the Facial Dimensions and Face Types among the Students of A Medical College. *JNMA; journal of the Nepal Medical Association*. 2018 Jan 1;56(209):531-4
11. Vinita Murgod, Punnya Angadi, Seema Hallikerimath & Alka Kale (2013) Anthropometric study of the external ear and its applicability in sex identification: assessed in an Indian sample, *Australian Journal of Forensic Sciences*, 45:4, 431-444, DOI: 10.1080/00450618.2013.767374
12. K.S. Ariyaratne, AT Dharmarathne, Age related Morphing Progression of Young Faces. The 3<sup>rd</sup> International Conference on Machine Vision(ICMV 2010) 2010. Pg.No. (391-394)
13. Shah S, Koirala S, Khanal L. Relationship of Handedness with Second to Fourth Digit (2D: 4D) Ratio and its Role in Sexual Dimorphism in Tibeto-Nepalese and Indo-Nepalese Adult Population of the Dharan Municipality, Sunsari District of Eastern Nepal: An Anthropometric Study. *Journal of Morphological Sciences*. 2019 Mar;36(01):033-8
14. Saha, K., Bhowmik, M.K., Bhattacharjee, D. (2014). Anthropometric Measurement of North-East Indian Faces for Forensic Face Analysis. In: Muda, A., Choo, YH., Abraham, A., N. Srihari, S. (eds) *Computational Intelligence in Digital Forensics: Forensic Investigation and Applications. Studies in Computational Intelligence*, vol 555. Springer, Cham. [https://doi.org/10.1007/978-3-319-05885-6\\_7](https://doi.org/10.1007/978-3-319-05885-6_7)
15. Majumder, Titlee & Ghosh, Subrata & Gangopadhyay, Somnath. (2020). In search of aggression markers amongst Pre Pubertal Children of West Bengal: An anthropometric attempt correlated with biochemical analysis. *BLDE University Journal of Health Sciences*. 5. 28. 10.4103/2468-838X.303766.