A Study on Reliability of Gender and Stature Determination by Odontometric and Craniofacial Anthropometric Parameters

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Abstract : Human identification is one of the most challenging subjects that man has confronted. The determination of adult sex and stature are two of the four key factors (sex, stature, age, and race) in identification of an individual. Craniofacial and odontometric parameters are important tools for forensic anthropologists when it is not possible to apply advanced techniques for identification purposes. The present study provides anthropometric correlation of the parameters with stature and gender and also devises regression formulae for reconstruction of stature. A total of 312 Nepalese students with equal distribution of sex i.e., 156 male and 156 female students of age 18-35 years were taken for the study. Total of 10 parameters were measured (age, sex, stature, head circumference, head length, head breadth, facial height, bi-zygomatic width, mesio-distal canine width and inter-canine distance of both maxilla and mandible). Co-relation and regression analysis was done to find the association between the parameters. All parameters were found to be greater in males than females and each was found to be statistically significant. Out of total 312 samples, the best regressor for the determination of stature was head circumference and mandibular inter-canine width and that for gender was head circumference and right mandibular teeth. The accuracy of prediction was 83%. Regression equations and analysis generated from craniofacial and odontometric parameters can be a supplementary approach for the estimation of stature and gender when extremities are not available.

Keywords : craniofacial, gender, odontometric, stature
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