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**PP 26****Estimation and Prediction of Stature Using Footprint Measurements of Undergraduates at KAATSU International University**

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**Background:** An individual's footprint provides useful evidence for establishing personal identity whenever complete or partial footprints are recovered at crime scene and forensic investigations. By establishing the correlation between these measurements and stature, forensic experts can utilize footprints as valuable evidence for personal identity establishment.

**Objective:** To estimate and predict stature by using footprint measurements among selected undergraduates at KIU

**Methods:** A descriptive cross-sectional study was conducted among 346 undergraduates of KIU above 18 years old. Data were collected using a pre-tested semi-interview – based questionnaire. A stature measurement, eight footprint measurements (foot length, foot width, foot heel breadth, heel-hallux toe length, heel-index toe length, heel-middle toe length, heel-ring toe length, heel pinky toe length) collected from each participant. Statistical analysis was done using SPSS version 28.0 using descriptive, inferential statistics and linear regression models.

**Results:** Among the sample (n=346), there were 228 (66%) female participants. The mean age of the sample was  $23.64 \pm 1.39$  years and the highest age of participants was recorded as 28 years and lowest age recorded was 18 years. All footprint measurements were significantly correlated with stature ( $p \leq 0.001$ ) and the correlation coefficient (r) ranges for footprints are (male: 0.335 to 0.562, female: 0.191 to 0.587). The regression equations for foot prints were formulated with prediction accuracy of male  $\pm 4.819$  cm to  $\pm 5.489$  cm and for the female  $\pm 5.166$  cm to  $\pm 6.263$  cm.

**Conclusion:** Most reliable footprint parameters for stature prediction are heel-middle toe length and foot length for males whereas foot length and heel-hallux toe length for females. These findings indicate a strong association between footprints, and stature, suggesting their potential as reliable indicators for estimating an individual's height.

**Keywords:** *Footprint measurements, Forensic investigations, Stature estimation, Sri Lankans*

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