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Sexual Dimorphism and Age Variations in Anthropometry, Body Composition and Nutritional Status among Kora Mudi Tribals of Bankura District, West Bengal, India

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KEYWORDS India; tribe; Kora Mudis; sexual dimorphism; anthropometry; body composition; nutritional status.

ABSTRACT The present study was undertaken to investigate age and sex variations in anthropometry, body composition and nutritional status among Kora Mudis, a tribal population of Bankura District, West Bengal, India. A total of 500 (250 males and 250 females) adult (18.0 < age ≤ 65.0 years) Kora Mudis of two villages of Bankura District (approximately 160 km from Kolkata), namely Phulberia and Sironipur were studied. Anthropometric measurements included height, weight, mid upper arm circumference (MUAC), biceps (BSF), triceps (TSF), subscapular (SUBSF) and suprailiac (SUPSF) skinfolds. Body mass index (BMI) and several body composition measures including percent body fat (PBF), fat mass (FM), fat mass index (FMI), mid upper arm fat area (MUAFA), mid upper arm muscle area (MUAMA) and total body water (TBW) were derived. BMI was used as a measure of nutritional status. Undernutrition was evaluated as BMI < 18.5 kg/m². Men had significantly greater mean height, weight, MUAC, BMI, TBW and MUAMA compared to women. On the other hand, women had significantly greater mean BSF, TSF, SUBSF, SUPSF, PBF, FM, FMI and MUAFA. Among men, there existed significant age variations in mean weight, BMI, MUAC, TBW and MUAMA, whilst among women there existed significant age variations in means of all variables except MUAC and MUAMA. Age was significantly ($p < 0.01$) negatively correlated with BMI ($r = -0.194$), FM ($r = -0.302$), FMI ($r = -0.300$), PBF ($r = -0.335$) and MUAFA ($r = -0.291$) in women. In men, age was not significantly correlated with any variable. Significant heterogeneity ($p < 0.05$) in Pearson correlation coefficients (r) between the sexes was observed for PBF, FM, FMI and MUAFA. Regression analyses of sex (sex coded as: men = 1, women = 2) with anthropometry and body composition measures revealed that sex had significant impact on all measures. Furthermore, regression analyses of age with anthropometric and body composition measures demonstrated that in men age had significant negative impact on BSF ($t = -2.310$, $p < 0.01$) only. However, in women, age had significant negative impact on most of the variables. Moreover, there was an increasing trend in the frequency of undernutrition with increasing age. The highest rates were observed among individuals aged ≥ 50 years (m = 60.0 %, w = 83.33 %). In conclusion, this study provided evidence that there existed significant age and sex variations in anthropometry and body composition among adult Kora Mudis. The frequency of undernutrition was much higher among older subjects. Appropriate nutritional intervention programs are needed for implementation in this ethnic group.