

Relationship of Income with Anthropometric Indicators of Chronic Energy Deficiency among Adult Female Slum Dwellers of Midnapore Town

Kaushik Bose, Samiran Bisai, Priyanka Das, Swapan Dikshit and Sampa Pradhan

*Department of Anthropology, Vidyasagar University,
Midnapore, West Bengal, India*

KEYWORDS India.Midnapore. Income. Chronic Energy Deficiency. Body Mass Index

ABSTRACT A cross-sectional study of 333 adult (> 18 years) female slum dwellers (mean age = 34.2 years) of Midnapore town, West Bengal, India, was undertaken to study the relationships of monthly per capita income (MPCI) with two anthropometric measures, namely body mass index (BMI) and mid-upper arm circumference (MUAC). It also investigated the association of MPCI with chronic energy deficiency (CED). Results revealed that the mean height, weight, MUAC and BMI of the subjects were 148.2 cm, 43.2 kg, 22.7 cm and 19.6 kg/m², respectively. The overall frequency of CED based on BMI (BMI < 18.5 kg/m²) and MUAC (MUAC < 22.0 cm) was 46.8 % and 43.5%, respectively. Based on the World Health Organization classification, the prevalence of CED among this population was very high (≥40%) and thus the situation is critical. Overall, MPCI was significantly ($p < 0.001$) positively correlated with BMI ($r = 0.21$) and MUAC ($r = 0.25$). Moreover, MUAC was very strongly correlated ($r = 0.81$; $p < 0.0001$) with BMI. Linear regression analyses showed that MPCI had significant impact ($p < 0.001$) on BMI ($T = 3.92$) and MUAC ($T = 4.74$). MPCI explained 4.1% and 6.1% variation in BMI and MUAC, respectively. Subjects belonging to the lowest per capita income group (PCIG) had the lowest mean BMI (18.9 kg/m²) and mean MUAC (21.9 cm) and the highest rate of CED (BMI based CED = 52.3%; MUAC based CED = 53.5%). Those in the highest PCIG had the largest mean BMI (20.7 kg/m²) and MUAC (23.9 cm) and lowest rate of CED (BMI based CED = 39.0 %; MUAC based CED = 35.4 %). There were significant PCIG differences in mean BMI ($F = 4.115$, $p < 0.05$) and MUAC ($F = 6.995$, $p < 0.001$). Moreover, there existed clear PCIG differences in CED rates using both BMI as well as MUAC. In conclusion, this study provided evidence that PCI was significantly associated with BMI, MUAC and the presence of CED. The relationships of PCI with BMI and MUAC were similar. The rate of CED was very high indicating a critical situation. These findings may have severe public health implications. It is recommended that immediate appropriate nutritional intervention programmes be initiated among this population along with serious efforts to increase their PCI. In this population, either BMI or MUAC can be effectively used to study the effect of PCI on nutritional status.