



Title : Body Fat Indices of Stunted and Non-stunted Children in Low Socioeconomic Areas of Mumbai City

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Introduction:

India has a high prevalence of stunting among children below five years of age. Stunting in early life has been associated with increased risk of morbidity and cognitive deficits. Recent literature suggests that stunted individuals are likely to have an altered body composition, lipid profile and glycemic control. Adiposity has been implicated in the pathogenesis of metabolic syndrome. Therefore, we conducted this study to examine the differences in the body fat indices of stunted and non-stunted children residing in low socioeconomic area of Mumbai city.

Methodology:

In this cross-sectional study, we recruited 947 children aged between 2 to 4 years and born with normal birth weight (≥ 2.5 kg) from anganwadis across Mumbai city. Weight, height, MUAC, waist circumference and skinfold thicknesses were measured. Z scores were computed for the anthropometric indices using WHO Anthro software. Slaughter's equation (1988) was used to derive the percent body fat. BMI and waist-height ratio (WHtR) was calculated. Birth weight was obtained from the records. Based on the height-for-age Z score (HAZ), children were classified as stunted (≤ -2.0 SD) or non-stunted (> -2.0 SD). One-way ANOVA was carried out to study the differences between the stunted and non-stunted children.

Results:

Overall, 31.9% (302) children were stunted while 68.1% (645) were non-stunted. The stunted children were significantly lighter and had lower MUAC than the non-stunted children ($p < 0.001$). No differences were noted in the mean BMI and body fat (%) of the stunted and the non-stunted children. Waist circumference and WHtR are indicators of central adiposity. There was no difference in the mean waist circumference of the stunted and the non-stunted children. The mean WHtR of the stunted children was significantly higher than that of their non-stunted counterparts ($p = 0.001$).

Conclusion:

In spite of being undernourished, stunted children exhibited a tendency to conserve body fat at a young age of 2 to 4 years. In the long-term, such a tendency may elevate the risk of obesity and related metabolic risks.

References:

- Slaughter, M.H., Lohman, T.G., Boileau, R.A. et al. 1988. "Skinfold equations for estimation of body fatness in children and youth." Human Biology 60: 709-23.
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