Socioeconomic and Genetic Factors Influencing the Strength, Weight, Length and Width Measurements of Children

Abstrak:

Child growth has been the interest of scientists for a long time. Most children in Africa and Asia still live in conditions that are not considered "optimal" by comparison with those prevailing in Europe and North America. There are, however, socioeconomic status (SES) improvements on those continents that create, in circumscribed populations, living conditions on a par with those of the "first world". The Javanese sample came from good socioeconomic status (SES) children in Malang (East Java). A total of 1913 Javanese children (822 boys and 1091 girls) were measured. The samples from South Africa were from high (urban) and low (rural) SES. As many as 1109 children (274 rural females, 297 urban females, 263 rural males, and 275 urban males) were measured. Analysis of variance was used to find significant differences, and probit analysis was used to calculate the age of menarche (12.15 years, s=1.10). The results showed that Javanese girls had significantly younger age of menarche. Socioeconomic and genetic factors both affect the growth and development of children, but differently, depended on the variables, the sex, and the age of the growing children. Grip strength development was affected by socioeconomic factor in male children. However, during later period of growth and development, the low socioeconomic children showed an indicator of catch up growth. On the other hand, female Cape Coloured children did not show significant differences between urban and rural, in the averages of grip strength. Males seem to be more affected by adverse environment. Although SES seemed to affect the averages of elbow breadth, the rural children of both sexes managed to catch-up at the last period of their growth and development. The differences between Javanese and Cape Coloured children were an example of the adaptation to specific environment, manifested in the different regulation in attaining adult height. This may be a result of the population history of Cape Coloured people who received substantial admixtures from European gene pool, while Javanese are descendants of people who for a very large number of generations resided in South East Asian environmental conditions. Thus the small final body size of Javanese people, determined by early puberty, is an adaptation to the life in climate that being warm and humid, it would be better to have low body mass/body surface ratio for efficient passive radiation of heat.

Keyword:
anthropometry, grip strength, height, biepycondylar breadth, adaptation

Daftar Pustaka:

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