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HOMO - Journal of Comparative Human Biology

journal homepage: www.elsevier.com/locate/jchb

Physical growth and nutritional status of Car Nicobarese and Moplah children of Andaman–Nicobar Islands in India

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ARTICLE INFO

Article history:

Received 6 July 2013

Accepted 29 October 2013

ABSTRACT

The objective of this cross-sectional study was to assess growth and nutritional status of Car Nicobarese children and compare it with Moplah children, who live in a similar environment. A total of 436 Car Nicobarese children and 438 Moplah children, aged 6–10 years, were selected for the study. The anthropometric measurements included stature, body weight, sitting height, bi-acromial breadth, bi-iliac breadth, mid-upper arm circumference, skinfold thickness of biceps, triceps and subscapular region. 50th percentile (median) growth curves were calculated among the studied children and compared with Centers for Disease Control and Prevention (CDC) 2000 reference. Z scores of weight for age (WAZ), height for age (HAZ) and BMI for age (BMIZ) were computed using growth references of the CDC 2000.

It was observed that the Car Nicobarese children were shorter but heavier than Moplah children of both sexes all through the age range, which was also reflected in median value of anthropometric variables. Car Nicobarese children were nutritionally better compared to Moplah children based on the nutritional indices. The major differences between Car Nicobarese and Moplah children were found in their arm muscularity rather than arm adiposity.

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Overall, Car Nicobarese children were nutritionally in normal and better condition than Moplah children. However, present dietary change (intake of high calories and fat diet) of Car Nicobarese population may be reflected in the form of childhood obesity in the recent future, which has already been observed in their adult population.

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Introduction

In addition to growth deficits among indigenous populations (Agrahar-Murugkar, 2005; Mitra et al., 2002; Reddy and Rao, 2000), growth excesses in the form of overweight and obesity are increasingly reported in India (Kabir, 2005; Pandher et al., 2004; Sharma, 2002) as the country has become industrialized and undergoes a rapid nutrition transition (Kapoor and Anand, 2002; Shetty, 2002) similar to other low income countries (Popkin, 1994; Popkin et al., 1996). Therefore, in developing countries such as India, childhood obesity for the last few decades has become an important health issue (Bouchard, 2000; Cole et al., 2000). Obesity can be assessed throughout childhood growth which is a good measure of population health and nutritional status particularly in children, because it is sensitive to variation in environmental quality (Frisancho, 1990; Khongsdier, 1999; Waterlow et al., 1977). Khongsdier and Mukherjee (2003) have rightly pointed out that improvement in socioeconomic status, better nutrition, and access to health amenities are likely to be more important factors for better growth and development among children. Longitudinal studies from childhood to adulthood have shown that overweight children may become overweight adults if obesity persists in adolescence (Mo-suwan et al., 1998).

In that respect, Sahani (2004) and Sahani et al. (2010) have observed that increase in obesity is a recent emerging phenomenon among Nicobarese adults in Nicobar Islands of India. It may be due to change of their lifestyle and food habits. In order to find out whether childhood obesity or trend toward obesity also persists among Nicobarese children of Car Nicobar Island, specifically among a pre-adolescent group, in the present study an attempt has been made to assess growth and nutritional status among Car Nicobarese children using anthropometric indices. These results were compared with results for children of Moplah community of Andaman Island, who live in a similar environment as children from Car Nicobar Island.

Materials and methods

Area and population

Car Nicobarese: The Nicobar Islands are situated in the southernmost portion of the Bay of Bengal. Their location ranges from 6° N to 10° N latitude and the meridians of 89° E to 94° E longitude. The inhabitants of the Car Nicobar Island, northernmost island of 127 km² within the Nicobar Islands, are called Car Nicobarese and are ethnically described as so-called Mongoloid people, speaking an Austro-Asiatic language (Das, 1977; Ganguly, 1977; Justin, 1990; Shyam Choudhary, 1977). The lineage (*tuhet*) is a very important social unit among them and available resources are owned by the *tuhet* as a whole. There is neither distinction of class nor creed and rather no noticeable gender discrimination. They are economically very homogeneous community. Land, forest and the sea are the major economic resources. Horticulture is the main subsistence and coconut plantation is the core of their economy. Apart from horticulture, rearing pigs and fowls are important components of their economy. At present, a number of Car Nicobarese also hold white-collar jobs.

In every village of Car Nicobar, a school, an integrated child development scheme center, a health center/sub-center and road facilities are available. Electricity, safe drinking water and medical facilities are also available to the community, due to the well-organised Tribal Council of Nicobar Islands. The Car Nicobarese consume traditional as well as modern introduced foods. Traditional food includes yam, pandanus, banana, tapioca, coconut and other fruits, roots and tubers, fish – mostly marine, crabs,

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