

Prevalence of Overweight and Obesity Among Pre-school Children in Semi Urban South India

HN HARSHA KUMAR , PADMA MOHANAN, SHASHIDHAR KOTIAN, BS SAJJAN , AND S GANESH KUMAR

From the Department of Community Medicine, Kasturba Medical College, Mangalore, India.

Correspondence to: Dr. HN Harsha Kumar, Assistant Professor and Epidemiologist, Department of Community Medicine, Kasturba Medical College, Mangalore, India. E-mail: drhnhk@rediffmail.com

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ABSTRACT

This study was conducted to ascertain the prevalence of overweight and obesity in 425 pre-school children (2 to 5 years) using the new Child Growth Standards released by the World Health Organization. Overweight and obesity were defined as body mass index (BMI) > 85th and 95th percentiles for that age and sex, respectively. The prevalence of overweight and obesity was 4.5% and 1.4%, respectively.

Keywords: *Body mass index, Children, India, Obesity, Overweight.*

INTRODUCTION

Overweight and obesity among adolescents is an emerging problem. The magnitude of overweight ranges from 9% to 27.5% and obesity ranges from 1% to 12.9% among Indian children (1-9). This study was carried out to study the prevalence of overweight and obesity in Indian children of 2 to 5 years of age using new WHO guidelines (10).

METHODS

This was a cross-sectional study conducted in Mangalore city between January and March of 2007. Assuming the prevalence of overweight and obesity among Indian children to be about 20% a sample of 385 was required. We prepared a list of nursery schools in the city along with the total number of students in them. The schools were then selected using simple random sampling till we reached the required sample size. We ended up with 425 children in the age groups 2 to 5 years from three nursery schools. A proforma to collect appropriate anthropometric measurements from the children was devised. This was tested at another nursery school (different from the one selected). Modifications were made to suit our circumstances and objectives. A written informed consent was obtained from the head of the institution before commencing the data collection. Medical students were trained in taking

anthropometric measurements of the children in the clinics. Their techniques were corrected and retested. These students collected the data from the nursery schools. Height (to the nearest millimeter) and weight (to the nearest 100th gram) were measured. Non-stretchable tapes and a spring balance weighing machine (accuracy 100 gram) were used to take measurements. We used the newly devised criteria developed by the WHO to define overweight and obesity. All the children whose weights were more than 85th percentiles (weight or BMI) for the age and sex were considered as overweight and more than 95th percentiles (weight or BMI) for the age and sex were considered obese. These (*i.e.*, overweight and obese) were mutually exclusive categories.

RESULTS

We studied 425 children in the age group 2-5 yr from three nursery schools. Males accounted for more than half (66.12%) of the children. Using 'weight for age' criteria it was found that 11 children (2.59%) were overweight (*i.e.*, had weight >85th percentile for the age and sex) and 6 children (1.41%) were obese (*i.e.*, had weight more than 95th percentile for the age and sex). Using BMI criteria it was found that 19 children (4.47%) were overweight (*i.e.*, had BMI >85th percentile for the age and sex) and 6

WHAT THIS STUDY ADDS?

- The prevalence of overweight and obesity among pre-school children in semi-urban South India is 4.5% and 1.4%, respectively.

(1.41%) children were obese (*i.e.*, had BMI >95th percentile for the age and sex).

DISCUSSION

We do not have a comparable study from India. These prevalence rates of overweight are lower than those obtained on children <5yr from western countries (*i.e.*, USA-35% overweight, Germany-14.8% overweight, Greek-31.9%, Denmark-10.4%) (11-14). Study conducted in Chinese children 2-6 yr of age has reported 10.7% overweight and 4.2% obesity(15). The rates in Asian countries are lower than the western countries. Apart from the differences in assessment methods and criteria used for the defining overweight and obesity, differences in infant feeding practices could have played a role.

The proportion of children who are overweight is higher as compared to obese. These findings are similar to the pattern observed in studies conducted on higher age group (>5 yr) in India(1-9). Except for study conducted by Sharma, *et al.*(9) where they considered children in the age group of 4 to 17 years, most of the other studies have been conducted in older children. As the criteria for children of <5 yr age group was not clear in the past, most of the researchers have not considered this age group. In spite of the fact that the cut-offs considered to define overweight and obesity have varied across the studies in India (MCHS Guidelines, IOTF Guidelines, and conventional cut offs), the parameters are the same. The proportion of children who are overweight using 'BMI for age' criteria is higher as compared to 'Weight for age' criteria. Similar results have been obtained by Mehta, *et al.* (5) and Sidhu, *et al.*(7). But both these studies have used different criteria as compared to ours. These were conducted on higher age group and large sample size.

Though the total prevalence is smaller than our assumption, it gives an idea of the kind of sample

size needed to undertake a detailed study on overweight and obesity in this age group. Being a cross-sectional study we do not know how many of these children will continue to have higher weights and BMI for age in future. Because of the feasibility constraints we could not undertake a community based study and limited ourselves to nursery schools. There is also a need to conduct long term follow up studies to find out the growth pattern of the children who have higher BMI and Weight for age.

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