

## **Nutritional status and cognitive functions among the year one school children in the district of Colombo**

In Sri Lankan education system, focus has shifted from gender equality and access towards quality of life that will help to gain the maximum benefits of the education system. Nutrition is a major factor that determines the quality of life. In Sri Lanka, there are many nutritional problems such as stunting, underweight, anaemia, iodine deficiency and vitamin A deficiency, which may hinder school performances. The aim of this study is to study the influence of nutritional status on the cognitive functions among a group of year one school children in the district of Colombo.

This study will be carried out among year one students in Hanwella and Moratuwa MOH areas in the district of Colombo in the Western Province where the total number of year one students is 1735 and 1472 respectively. Rationale of selections of study area is that they consist of groups of highly urbanized and highly rural within easy access to the principal investigator. Total population will be studied as it is more than the statistically calculated required sample size which is 2641. The study unit is defined as a child in year one in a government school who belong to ethnic group of Sinhala and born between 1<sup>st</sup> of February 2002 to 31<sup>st</sup> of January 2003. Study group is limited to Sinhalese because instruction medium and study materials are available only in Sinhala and trained data collectors from National Institute of Education are available only in the Sinhala medium.

Exclusion criteria is; children born as a result of a multiple pregnancy, children who haven't completed five years and who have completed seven years of life, children with cerebral palsy or mental retardation, children who have got absent from continuously for one month, children with diagnosed pathology which affect nutritional status, children with a history of continuous three months of hospitalization in past year and children who are suspected as mentally or physically handicapped at the time of the school entry.

Study will be carried out in three components. In Component 1, nutrition status of children will be assessed in terms of, height for age, weight for age, weight for height, Iodine status, Iron status and obesity using a descriptive cross sectional method. In Component 2, the level of cognitive functions will be assessed. The Component 3 is to find out relationship between nutritional status indicators and other risk factors for low cognitive functions.

The anthropometric measurements will be carried out by two pre-intern medical officers who will be kept blind to marks or cognitive test. They will be trained by principal investigator and inter and intra observer variations will be assessed prior to commencement of the study.

The cognitive functions will be assessed using an interviewer administrated questionnaire called entry competence test which will be given to all the classes of a given school at the same time by data collectors. This has been in use for the past 20 years.

Students with low cognitive functions as shown by score below 39% in the cognitive test will be regarded as cases and children with normal cognitive functions will be regarded as controls provided that they are matched for age and class room. The parents and teachers of this group of children will be informed that the child belongs to the lower category in the cognitive test.

Data will be analyzed with the help of Statistical Package for Social Scientists (SPSS) software.

Educational programmes for the mothers will be conducted by principal investigator via the midwife of the area to help upgrade their level of intelligence.