# NUTRITIONAL STATUS OF CHILDREN AFFECTED BY ILLNESS IN A PRE-SCHOOL POPULATION; IMPLICATIONS FOR NUTRITION INTERVENTION PROGRAMMES

## A.S.B. WIJEKOON

*Department of Paediatrics, Faculty of Medicine, University of Peradeniya.*

## ABSTRACT

Sri Lanka, has achieved considerable progress in indicators such as mortality and literacy. However, paradoxically it is still facing persistently high rates of childhood malnutrition in spite of a variety of nutrition intervention programmes conducted by both government and non-governmental organisations. Lack of food and nutrients are not the only reasons for poor nutritional parameters, the other being illness. This study was designed to assess the relationship of illness and nutritional status of a sample of preschool children attending a "Well Baby Clinic". Of 542 subjects sampled 81 had hospital admissions for acute illnesses and of them 63 had two or more days of hospital stay. Weight for age (WAZ) 'Z' scores (Mean ± s.d) for those needing hospital admission (-1.0 ± 1.1) and those needing two or more days of hospitalization (-1.1 ± 1.0) were significantly lower (p=0.040 and p=0.009) than those not hospitalised (-0.65 ± 1.25). The findings show that nearly 15% have had illness sufficient for hospitalisation. They also had significantly poor 'WAZ' scores than the rest, thus bringing down the 'WAZ' of the whole sample. It is unlikely that 'top down' nutrition intervention programmes without adequate illness management strategies will be adequate to deal with this type of malnutrition. The higher the proportion of illness associated malnutrition in a population, the lower will be the WAZ scores for that whole population and lesser the chances of success with pure nutritional intervention programmes. This might well be the case in Sri Lanka.

## INTRODUCTION

Sri Lanka, in spite of having relatively good social and health indices in literacy, life expectancy, infant and neonatal mortality, has persistent childhood malnutrition as determined by NCHS (National Centre for Health Statistics) Standards (Anon 1991, 1994 and 1998). Of the three major parameters, namely, Height for age, Weight for height, and Weight for age, the last parameter has fared the worst. The problem of malnutrition has remained so in spite of a strong governmental commitment to bring down the level of malnutrition (Weight for age) from 35% in 1990 to 17.5% by 2002. Towards this end they have implemented a variety of nutrition intervention programmes. These programmes have not met with much success, as shown by the latest available national data (see Table 1).

Table 1. Percentage of Pre-school children classified as malnourished

| Sex | Height/Age | Weight/Age | Weight/Height | Number |
|---|---|---|---|---|
| Male | 22.7 | 15.6 | 34.8 | 1670 |
| Female | 25.1 | 15.4 | 40.9 | 1454 |

Source: - Sri Lanka Demographic and Health Survey 1993; from "Annual Health Bulletin of Sri Lanka 1994".

Lack of food and nutrients are not the only reasons for poor nutritional parameters, the other being illness. One reason for persistent malnutrition in spite of these programmes may be the lack of adequate illness management strategies. Before planning intervention strategies however, one has to assess illness as a contributor to malnutrition. This study was thus designed to;

(a) assess the proportion of children attending the "Well Baby Clinic" in Peradeniya Teaching Hospital between September 1999 to August 2000 who needed hospitalisation for acute illnesses, and
(b) compare the nutritional status between the hospitalised and the non-hospitalised groups of children.

## SUBJECTS AND METHODS

All preschool children registering before 8.30 a.m., at "The Well Baby Clinic" at Teaching Hospital, Peradeniya, from September 1999 to August 2000 for vaccination were recruited for the study. Trained Medical Students recorded in a structured form a detailed history of the child's health including previous illnesses and weighed the subjects (in kg) using a UNICEF supplied spring balance, to the nearest 100 g. Weight for age 'Z' (WAZ) scores based on the "National Centre for Health Statistics" (NCHS) were calculated using "Anthropac" software. "ANOVA" was used to compare 'WAZ' scores of hospitalised and non hospitalised groups in relation to the number of episodes of hospitalization and duration of hospital stay using "Minitab R 8.21" software.

## RESULTS AND DISCUSSION

Of 542 subjects sampled 81 (approximately 15%) had past hospital admissions and of them 63 had two or more days of stay. Results of "ANOVA" for the WAZ scores between those needing hospital admission and those not needing hospitalization are given in Table 2, and those categorised by duration of hospital stay given in Table 3.

**Table 2. Analysis of variance of WAZ scores of hospitalised versus non hospitalised subjects**

| Hospitalisation | Number | Mean 'Z' | SD | 95% CI's for Mean |
|---|---|---|---|---|
| None | 458 | -0.65 | 1.3 | (---*---) |
| Once | 52 | -1.03 | 1.1 | (-----------*-----------) |
| Twice or more | 29 | -1.03 | 1.2 | (--------------*--------------) |
| Scale → | | | | ---------+-----------+---------+--------- |
| | | | | -1.2        -0.9        -0.6 |
| Df=2; F=3.23; p=0.040 | | | | |

**Table 3. Analysis of variance of WAZ scores of subjects against duration of hospitalisation**

| Duration | Number | Mean 'Z' | SD | 95% CI's for Mean |
|---|---|---|---|---|
| None | 458 | -0.65 | 1.3 | (---*---) |
| One day | 46 | -0.59 | 1.2 | (-----------*-----------) |
| =>Two days | 35 | -1.15 | 1.0 | (--------------*--------------) |
| Scale → | | | | ---------+-----------+---------+--------- |
| | | | | -1.2        -0.9        -0.6 |
| Df=2, F=4.75; p=0.009 | | | | |

The findings show that a relatively large proportion of pre-schoolers who have had illnesses needed hospitalisation. Furthermore, analysis of variance of WAZ by hospitalisation and duration of hospital stay show that hospitalised children show significantly low WAZ scores thus bringing down the WAZ of the whole sample. However, WAZ scores in the group hospitalised for a single day are as good as those not hospitalised. The explanation may lay in the fact that those who were discharged after a single day may be subjects with a low threshold for admission without having severe illness.

It is beyond the scope of this study to determine which came first, whether it was illness or malnutrition. Whichever came first, for this subgroup of children with illness, the implications for nutrition intervention programmes is unlikely to be different. They will need a three-point strategy of illness intervention, nutritional rehabilitation and prevention of future illness. It is highly unlikely that 'top down' nutrition intervention programmes like the "Thriposha" programme, which has been implemented for the last quarter of a century without adequate illness management strategies at the grass root level, will be adequate to deal with this type of malnutrition. The higher the proportion of illness associated malnutrition in a population, the lower will be the 'WAZ' scores for that whole population, and lesser the chances of success with pure nutritional intervention programmes. This might well be the case in Sri Lanka.

## ACKNOWLEDGEMENT

## REFERENCES

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