

Seasonal Variations in Nutrient Intake of Children Belonging to Plantation and Agricultural Labour Families

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ABSTRACT The influence of seasonal variations in food consumption and nutrient intake of children was examined among plantation and agricultural labour families in Balehonnur town, Chickmagalur District in Karnataka. The study was conducted for period March to October comprising of dry and wet seasons. From the total number of school children surveyed (240), a randomly selected sub sample of diet of 20 children from each group in two seasons were analysed for calorie, protein, fat, calcium, iron and ascorbic acid. The calorie intake of both plantation and agricultural labour group children was found to be inadequate. The intake of protein, calcium, iron, ascorbic acid and carotene was more in plantation labour group children. Seasonal difference in calories, protein and fat were not found. However, the intake of calcium, iron and ascorbic acid was increased in wet season in both the study groups and this is due to increased consumption of green leafy vegetables and locally available fruits which are freely available in the farm and plantations.

INTRODUCTION

In developing countries most people make their living directly from the land. The seasonality of the agricultural cycle may affect household food behaviour and dietary practices through several mechanisms. The most obvious is a possible change of intrafamily food distribution in response to fluctuations of the total food available to the family (Bidinger et al., 1986). The classical concept of seasonality in food intake is that people in areas with marked wet and dry seasons show a satisfactory intake after harvest usually at the beginning of the 'dry season' which gradually declines reaching its lowest ebb during the so called 'hungry season' (Spencer and Heywood, 1983). Fluctuations in the distribution of food among children was found to vary seasonally particularly among

small farmers and labouring families (Abdullah and Wheeler, 1985). Hence the present study was undertaken to determine the seasonal differences in the nutrient intake among school children (7-9 years) of plantation and agriculture labour families.

MATERIAL AND METHODS

This work was carried out as part of the comparative study of seasonal variations in nutritional status of children of plantation and agricultural labour families. The survey was conducted from March to October (comprising of dry and wet season) in Balehonnur a rural town of Chickmagalur district in Karnataka. The municipality is composed of the town of Balehonnur proper as well as several outlying villages and private coffee plantations. The region has dry season between March to May and rainy season between June to October.

For the comparative study of seasonal variation in Nutritional Status two hundred and forty children were selected comprising of 120 belonging to plantation labour group (PL) and 120 children from agriculture labour group (AL). Information about the seasonal availability of foods was obtained from plantation and agricultural labour families. Pretest schedule was used to obtain the general information and dietary pattern of all the children studied.

Nutrient Intake of Selected Children : From the total children surveyed for somatic status a sub-sample of 20 children's diet from each plantation and agriculture labour group families was randomly selected for meal analysis in two seasons. Two days diets in every season were collected. The collected food samples were packed

Table 1: Mean intake of energy and nutrients of the study children in two seasons

Dietary constituents	PL Group				AL Group				RDA
	Dry Season		Wet Season		Dry Season		Wet Season		
	X	S.D.	X	S.D.	X	S.D.	X	S.D.	
Energy (Kcal)	Aa 1530.0	613.2	*Aa 1530.0	613.1	*Aa 1515.0	590.2	*Aa 1515.0	590.8	1925
Protein (g)	*Aa 36.0	9.4	Aa 35.0	8.6	*Bb 30.0	8.9	*Bb 31.0	8.6	41
Fat (g)	*Aa 3.9	1.3	*Aa 3.9	1.3	*Aa 3.5	1.6	*Aa 3.5	1.6	15
Calcium (g)	Aa 390.0	60.4	Bb 461.0	63.3	*Bb 300.0	594.0	Aa 360.0	60.1	400
Iron (mg)	*Aa 15.0	2.3	Bb 21.9	8.9	*Bb 12.0	1.9	*Aa 18.0	3.4	25
Ascorbic acid (mg)	*Aa 16.0	22.1	*Bb 27.0	7.7	*Bb 11.0	2.3	*Aa 18.0	3.4	40

RDA = Recommended dietary allowances means

Between plantation and agricultural families means with different upper case (A,B) superscript will differ significantly ($P < 0.05$)

Between dry and wet season means with different lower case (a, b) superscript will differ significantly ($P < 0.05$)

* Means compared with RDA are significantly different ($P \leq 0.05$)

in air tight containers and labelled. Each sample was homogenised using known quantity of water and fresh homogenised sample was used for ascorbic acid analysis. One tenth of homogenised sample was dried. The dried sample was powdered and used for chemical analysis.

Protein was analysed using micro-Kjeldahl method (AOAC, 1980). Energy was estimated by Bomb-Calorimeter (Gopalkrishna and Ranjhan, 1980). Fat was estimated as crude ether extraction of the dry test material (AOAC, 1980). Calcium and iron were estimated by Calorimetric method (AOAC, 1980). Ascorbic acid was estimated by indicator method using 2-6 dichlorophenol Indophenol. The estimation of ascorbic acid was carried out in fresh homogenised diet samples (AOAC, 1980).

RESULTS AND DISCUSSION

The PL and AL group children were given the food which was prepared for the elders of the family. The diets were monotonous except in wet season when more green leafy vegetables were used in the diet.

The table I compared the average nutrient intake of PL and AL group children from ana-

lysed diet samples. The mean and the standard deviation of average intake of nutrients are presented. Intake of selected nutrients were in general below the recommended dietary allowances (RDA). The calorie intake was significantly lower than RDA in both PL and AL groups in both the seasons (1515-1530 Kcal). So also the other nutrients in both groups were significantly lower in dry season. However seasonal difference in fat, protein and calorie was not found.

Calcium intake was significantly lower in AL group in dry season. Significant difference existed intake of calcium between PL and AL groups. Iron intake was significantly lower from RDA in PL and AL group in both seasons. Also ascorbic acid intake was significantly inadequate in PL and AL groups in both seasons. Thus seasonal differences in intake of calcium, iron and ascorbic acid being significantly higher during wet season.

The seasonal pattern of the availability of fruits and vegetables in the select study area revealed that most of the greens and fruits are available in rainy season in the plantations, agricultural farms and nearby forest areas. This finding is in concurrence with the findings of Caste (1980) who observed that seasonal fruits

and vegetables available contributed to a part of actual diet. Most of the seasonal food available for the study group are rich in carotene, iron and ascorbic acid rather than protein and fat.

Thus seasonal variation studies in the present investigation shows that most of the seasonal foods available for the study group contributed higher intake of minor nutrients.

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