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PRINT: ISSN 0970-9274 ONLINE: 2456-6608
J. Hum. Ecol., 13(5): 363-367 (2002)
DOI: 10.31901/24566608.2002/13.05.05

Nutritional Status of Preschool Children in Different Agro-Economic Regions of Andhra Pradesh

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INTRODUCTION

Some of the most florid problems of malnutrition confronted by most of the developing countries in the World are also prevalent in India. There are several factors, which are responsible for the tragic picture. Among these, social, economic and cultural factors play a major role in conditioning the availability and intake of different food stuffs in different regions of the country and also different segments of the population. In a comprehensive survey in rural Hyderabad, India (Jyoti, 1963) it was noted that majority of the households were economically backward. The monotonous and nutritionally inadequate diet, consumed by the population was largely due to poverty and restricted living conditions. Swaminathan et al. (1964), also found that children from higher income groups in rural areas were not much different in their nutritional status and growth performance compared to children from lower socio-economic group as their environmental conditions, habits, customs were more or less the same. Vijayaraghavan (1969) stated that children from high-income group were much taller and heavier than those from poor socio-economic class. The fact is that the better the environment can bring about better growth.

Chronic food deficits accompanied by infections contribute to stunting and underweight, both of which are highly prevalent in developing countries and are the most common forms of malnutrition (Jelliffe, 1989). Gopalan (1983) revealed that small body size in Indian children is clearly the hall mark of poverty and all the ills that go with it. Children who are subject to socio-economic and dietary constraints during their critical years of growth and development, end up as adults with small body size. Such adults may be apparently healthy, but there is evidence that their productivity and earning capacity are impaired (Satyanarayana and Naidu, 1977). In a study by Hanumantha Rao (1989) revealed that the role of the whole complex of the ecological factors like socio-economic, geographic and climatic factors, health facilities and their utilization, all play an important role in determining the growth pattern of the tribal communities in different ecological zones. Repeat surveys of National Nutrition Monitoring Bureau (1999) indicated that though little or no change in the dietary intakes of rural population over a period of time, there is a trend towards a better nutritional status of preschool children, which may be because of non-nutritional factors such as improvement in safe drinking water and environmental sanitation and availability of better health care. Therefore, the present study is an attempt with an objective to assess the nutritional status of rural preschool children in different agro-economic regions of Andhra Pradesh.

MATERIAL AND METHODS

Andhra Pradesh is divided into 23 districts, distributed in three regions namely coastal Andhra, Telengana and Rayalaseema. These three regions differ considerably in terms of both socio-economic and demographic characteristics (Govt. of AP, 1994). Multistage stratified sampling procedure was adopted in selection of districts in each region, and mandals in each selected district. Hence, East Godavari district from Costal Andhra, Nizamabad district from Telengana and Chittoor district from Rayalaseema was randomly selected for the study. Further, a total of six mandals (two mandals from each district), i.e. Tuni and Allavaram from East Godavari, Madnur and Banswada from Nizamabad and Thamballapalli and Srikalahasti from Chittoor district were selected based on availability of irrigation facilities, rainfall and area under irrigation. Ten villages in each mandal were randomly selected based on probability proportion to size. In each village, twenty households having at least one preschool child were chosen for the study.

From each household, information on socio-demographic, agro-economic, maternal and child health and nutrition practices was collected using

a precoded proformae. In addition, family diet survey (weightment) was carried out in all the households surveyed. Anthropometric measurements, viz, height and weight were taken on all the available individuals in the household using standard methods and equipment (Weiner and Lourie, 1969). However, in the present paper, the nutritional status of children (0-6 years) in the three regions of Andhra Pradesh is presented. The nutritional status of children was assessed adopting Z-score procedure using NCHS values as standards of reference (WHO, 1995).

RESULTS

Socio-economic Profile

The socio-economic profile of the population covered in the three regions is presented in Table 1. Most of the households surveyed belonged to Hindu religion and only 7% each in Telengana and Rayalaseema were Muslims. About 13.4% in Rayalaseema, 9% in Telengana and 3% in Coastal Andhra were scheduled tribes while, 31% in coastal Andhra, 27% in Telengana and 14% in Rayalaseema were scheduled caste population. Majority of the households covered were nuclear families. The mean family size was significantly higher in Telengana (5.7) followed by coastal Andhra (5.3) and Rayalaseema (5.2). Among the population covered in the three regions, the sex ratio was observed to be higher with 1053 females per 1000 males in Telengana region and the same for coastal Andhra and Rayalaseema was 1048 and 1030, respectively. Literacy status of the head of the household revealed that higher percentage of literates were found in Rayalaseema (54%) followed by coastal Andhra (46%) and in Telengana (20%).

According to the occupational distribution of head of the household, the proportion of cultivators were higher (39.8%) in Rayalaseema region compared to other two regions (17% each), while the proportion of labourers were high in coastal Andhra region (63%) followed by Telengana (48%). The size of the land holdings possessed by the households in Rayalaseema was significantly better compared to other two regions.

The distribution of households by per capita annual income revealed that about 70% of the households have per capita income less than Rs.3000/- in coastal Andhra followed by Telengana (55%) and Rayalaseema (33%). In contrast, a higher percentage of households in Rayalaseema (37%) were having income more than Rs.5000/- followed by Telengana (15%) and coastal Andhra (11%). Similarly, the mean per capita annual income was observed to be significantly higher with Rs.5069/- in Rayalaseema

Table 1: Socio-economic profile of the population covered

S. No.	Particulars	Regions (% of HHs) Andhra (n=397)	Telengana (n=384)	Rayalaseema (n=403)
1	*Religion*			
	Hindu	98.5	91.9	93.1
	Muslim	1.0	7.6	6.6
	Christian	0.5	0.5	0.3
2	*Community*			
	Scheduled Tribes	3.0	8.9	13.4
	Scheduled Castes	31.2	26.8	13.9
	Backward Classes	45.8	50.0	43.0
	Other Castes	19.9	14.3	29.3
3	*Type of Family*			
	Nuclear	72.5	52.0	65.3
	Joint	13.6	18.5	9.2
	Extended Nuclear	13.9	29.5	25.5
4	*Average Family size*	5.3	5.7	5.2
5	*Sex Ratio*	1048	1053	1030
6	*Literacy Status of Heads of HH*			
	Illiterate	56.3	81.2	49.4
	Primary	23.2	5.5	25.3
	Upper Primary	10.6	4.2	8.9
	Secondary and above	9.9	9.1	16.4
7	*Occupation*			
	Agriculture Labour	49.6	45.0	21.3
	Other Labour	13.4	2.9	17.2
	Cultivator	17.8	17.2	39.8
	Artisan	5.0	3.6	6.9
	Service	4.3	8.3	6.9
	Business	2.3	7.6	4.2
	Others	7.6	15.4	3.7
8	*Size of Land Holdings*			
	No land	69.7	31.2	29.9
	<3 acres	19.7	41.4	33.4
	3-5 acres	6.6	13.3	20.5
	> 5 acres	4.0	14.1	16.2
9	*Per capita Annual Income(Rs)*			
	< 3000	69.5	55.1	33.0
	3000-5000	19.3	29.4	29.7
	> 5000	11.2	15.5	37.3
10	*Mean per capita Annual Income (Rs)*	3427	3858	5069

Regional Differences (χ^2-test) $P<0.001$

compared to Rs.3858/- and Rs.3,427/- respectively for Telengana and Coastal Andhra.

Physical facilities revealed that 44% of the households in Rayalaseema region, 39% in coastal Andhra region and only 18% in Telengana region were having pucca houses (Table 2). About one-third of the households surveyed were having only one room. Remaining households had two or more rooms. About 63% of the households in Andhra, 53% in Rayalaseema and only 23% in Telengana were having separate kitchen facility in their houses. About 96% of the households were using fire wood as a cooking fuel in all the regions. A significantly higher percentage of households in Rayalaseema (86%), having electricity in their houses than in Telengana (55%) and coastal Andhra (30%). Majority of the households were not having their own source of drinking water facility. The common drinking water source for majority of the households was open well (67.8%) in Coastal Andhra, deep borewells in Telengana (63.3%) and Rayalaseema (60.6%).

Nutritional Status

The assessment of child nutritional status was presented here in terms of two anthropometric measurements namely weight and height, since these are the most widely applied indicators, which allow highly specific and broadly accepted interpretation.

The presence of undernutrition in children is diagnosed by using three anthropometric indicators, viz., height for age, weight for age and weight for height. The height for age of a child reflect linear growth and measures long term growth faltering or stunting, weight for height is particularly sensitive to acute growth disturbances and indicates the presence of wasting. Weight for age represents on convenient synthesis both linear growth and body proportion. Z-score distribution was used to assess the nutritional status and less than -2Z scores, to signal that the child is at risk of being underweight (weight for age), stunted (height for age) or wasted (weight for height).

According to weight for age, Telengana region had significantly higher children with less than -3Z score (29.9%) than coastal Andhra (20%) and Rayalaseema (11.6%). Correspondingly, the extent of normal grade children (above -2Z scores) were higher in Rayalaseema (Table 3).

Table 2: Distribution (%) of households by physical facilities

S. No.	Particulars	Regions (% of HHs) Andhra (n=397)	Telengana (n=384)	Rayalaseema (n=403)
1	*Type House*			
	Pucca	38.8	18.2	43.5
	Semi Pucca	11.6	61.7	12.7
	Kucha	49.6	20.1	43.8
2	*Number of Rooms*			
	One	35.5	33.6	37.8
	Two	50.4	45.8	35.4
	Three or more	14.1	20.6	26.8
3	*HH having Separate Kitchen*	63.0	22.7	52.9
4	*HH having Electricity*	30.2	54.9	85.7
5	*Drinking Water Facility*			
	Tap water	11.6	45.9	36.6
	Hand pump	15.1	63.2	60.6
	Well water	67.8	6.0	14.3
	River/Stream	17.9	4.9	4.3
6	*HH having Sanitary Latrine*	4.3	2.1	8.3

Regional Differences (χ^2-test) P<0.001

Table 3: Distribution (%) of 0-6 years children by Z - score intervals

Region	N	< - 3Z	- 3Z to – 2Z	>= - 2Z
Weight for Age				
Andhra	636	20.9	40.6	38.5
Telengana	658	29.9	36.5	33.6
Rayalaseema	595	11.6	34.2	54.2
Height for Age				
Andhra	625	21.3	28.0	50.7
Telengana	653	32.7	28.5	38.8
Rayalaseema	590	14.0	30.8	55.2
Weight for Height				
Andhra	621	5.3	19.3	75.4
Telengana	652	6.7	15.8	77.5
Rayalaseema	582	2.6	12.9	84.5

Regional Differences (χ^2-test) P<0.001

With regard to height for age about 44.8% of children in Rayalaseema, 49.3% in Coastal Andhra and 61.2% in Telengana are stunted (less than -2Z score). Severe grade stunting (less than -3Z score) is higher (32.7%) in Telengana compared to other two regions. Similarly, children in Telengana (22%) and Coastal Andhra (24%) region had higher wasting (less than -2Z scores) as compared to Rayalaseema (15.4%). On the whole, nutritionally

Rayalaseema was better than the other two regions.

DISCUSSION

The results of the present study revealed significant regional variations with respect to socio-demographic, agro-economic as well as nutritional status. In a study by Hanumantha Rao et al. (1994) concluded that relatively more stable income resulted in better consumption levels which in turn led to better nutritional status of population. The unstable income from agriculture alone especially in dry areas mainly contribute to higher levels of undernutrition. National Nutrition Monitoring Bureau for the year 1999 revealed that households with better socio-economic status, dwelling and better demographic conditions were having better food intakes and nutritional status. According to report of the bureau, households from higher caste groups, lower family size, *pucca* house, large landholding size, higher per capita income and occupation groups such as cultivators, business and service were nutritionally better than the other category of households,

The present analysis revealed that socio-economically Rayalaseema region was better with high per capita income, smaller family size, higher literacy rate, better dwelling conditions, higher landholding size and higher percent of agriculturists. Coastal Andhra more or less comparable to Rayalaseema, while the socio-economic status of Telengana was relatively worse than the other two regions. Smaller landholdings, landlessness, share cropping and other causes of poverty are on all potent causes of undernutrition in Telengana region. It is well recognized that undernutrition is the outcome of food insufficiency and other related factors. Hence, it is important to improve food security by improving in purchasing power of the households as well as other environmental conditions.

KEY WORDS Preschool Children. Nutritional Status. Rayalaseema. Costal Andhra. Telengana

ABSTRACT Several studies revealed that malnutrition continues to be a public health problem in India. There are several factors responsible for this tragic picture. The whole complex of ecological factors like socio-economic conditions, geographic and climatic factors, diet, health and sanitation etc., play an important role in determining the nutritional status. Geographically Andhra pradesh is divided in to three regions, which differ considerably in terms of both socio-economic, demographic and other characteristics. Keeping in view the geographical differences, the nutritional status of the children was assessed in the three regions. The results indicated that socio-economically Rayalaseema is better with higher per capita income, smaller family size, higher literacy rate, better dwelling conditions, higher land holding size and higher per cent of agriculturists, which ultimately resulted in better nutritional status compared to the other two regions. Inadequate land holdings, landlessness, share croping and other causes of poverty are on all potent causes of undernutrition in Telengana region.

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