

Nutritional Status of Kodaku Pre-School Children in Central India

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KEYWORDS Kodaku. Nutritional Status. Pre-School Children. Tribe

ABSTRACT A community based cross-sectional study was conducted to determine the current nutritional status of pre-school children of Kodaku tribe. A total twenty-five villages were selected by Stratified proportional sampling method. Four hundred eighty-five households and one hundred and eight two pre-school children covered in this study. The Kodaku boys and girls were shorter and lighter than NCHS standard. According to weight for age 59.8% of the children were under-weight ($<$ median -2 SD) and about 26.2% children had very low body weight which were $<$ 3 SD of the standard. Height for age and weight for height data revealed that 43% children suffered from stunting and 35% recorded wasting. However higher prevalence of Vitamin A deficiency 2.6% was observed. Clinically PEM was not seen. This study shows that Kodaku Pre-school children were nutritionally poorer as compared to other tribal and general rural population of Madhya Pradesh.

INTRODUCTION

Children below the age of five years constitute nearly 15% of the total population of country and from the nutritional standpoint constitute a vulnerable segment and suffers the highest rate of morbidity and mortality (ICMR Report, 1986; Gupta and Shukla, 1992) for almost a decade evidence that more children die from malnutrition and it is doing serious damage to the physical growth and intellectual performance in the later life (Lloyd and Lederman, 2002).

India has variety of tribal population they constitute about 8% of total population, these are considered to be aboriginals and confined to living in hilly and dense forest area isolated from the main stream (Tiwari, 1984; Hanumantha Rao, 1987). A great majority of them inhabitant in the Central India. Kodaku listed as economically backward tribe. Cultivation and other labour like unskilled labour is the main occupation. Data regarding the nutritional status of this tribe is scanty. Hence a study was carried out to assess the nutritional status of Kodakus.

The Tribe: Kodaku tribe is principally found in the northeastern part of Madhya Pradesh (now it is in Chhattisgarh). This socio-economically backward tribe considered to be sub-tribe of Korwas. They reside in the dense forest covered with hilly tracts of Sarguja district. Kodaku project has enumerated Kodaku population at 20,483 (4374 families) in 131 villages spread over 8 community developmental blocks. Agriculture is the main occupation. Both male and female are engaged in agriculture activities. Subsidiary

occupations include daily labour in forest work. The literacy very is low (TRC Report, 1993).

MATERIAL AND METHODS

A cross sectional study has been carried out in the year 2000. Trained investigators and medical officer were deployed for this purpose. The study was conducted in 25 villages spread over eight developmental blocks of Sarguja district. Villages were selected by adopting stratified proportionate sampling method. Four hundred eighty-five households and one hundred and eighty two pre-school children covered for this study. All these individuals were examined for clinical signs of nutrition deficiencies while data on anthropometrical measurements weight, height were measured using standard procedures (Jelliffe, 1966). Statistical analysis was done using SPSS software. Anthropometrical data mean height and weight were calculated according to age and sex and compared with the National Center for Health Statistics Standards (NCHS, 1976). The malnutrition was assessed by using standard deviation classification (Waterlow, 1977) Based on weight for age (under weight), height for age (stunting), weight for height (wasting).

RESULTS

The mean height and weight of Boys and Girls were compared with their counter part of Madhya Pradesh other tribals as well as with NCHS values (Table1). The mean height

increased significantly with increase in age. Though the pre-school girls were found taller about 2–3 cm than those Kodaku and other Madhya Pradesh tribal boys while the body weight were comparable. The kodaku boys and girls were shorter and lighter than their American counter part (NCHS). Table 2 shows the nutritional deficit using standard deviation classification of under weight (Weight for Age) stunting (Height for Age) and Wasting (Weight for Height). The proportion of healthy children without body weight deficit for age 40% ($>$ median -2 SD of the NCHS standard) was lower than proportion of healthy children without stunting (56%) and without wasting for their given height (54.8%). The proportion of children of body weight deficit for age leading the indicators with 59.8% ($<$ median -2 SD) followed by stunting 43% and wasting 35% the proportion of children with severe underweight ($<$ median -3 SD) was 26.2% Followed by severe stunting 18.3% and severe wasting with 5.8 percent. Clinically PEM in the form of Marasmus and

Kwashiorkor was not seen. Higher prevalence Vitamin A deficiency such as Bitot spot and night blindness was recorded in 2.6% of children mostly aged about 3–5 years. However B-complex deficiencies predominantly angular stomatitis 0.6 percent, goiter 1.7% and dental caries was seen in 3% of the children (Table 3).

DISCUSSION

The extent of malnutrition in pre-school tribal children has been attempt by several authors in the different states of India (Hanumantha Rao and Satyanarayana, 1974). More than the half of the children (59.8%) had below median -2 SD Body weight similar findings have been reported by Hanumantha Rao et al. (1994) in the nutritional status of the Sarguja tribes. Weight for height the degree below -2 SD of the standard is calculated wasting which reflect recent nutritional stress and weight loss. The magnitude of wasting was more 35% than the figure reported for the state of Madhya Pradesh (23.7%) by

Table 1: Mean $\pm$ S.D. height (cm) and weight (kg) of Kodaku pre-school children in comparison with Madhya Pradesh other tribe.

Tribe	Age group	Boys		Girls	
		Height	Weight	Height	Weight
Kodaku	1+	66.6 $\pm$ 6.0	7.7 $\pm$ 1.7	73.5 $\pm$ 8.5	7.1 $\pm$ 1.8
	2+	76.0 $\pm$ 8.5	9.9 $\pm$ 2.3	81.8 $\pm$ 4.8	8.9 $\pm$ 1.3
	3+	84.1 $\pm$ 5.7	10.5 $\pm$ 1.7	88.4 $\pm$ 7.2	10.4 $\pm$ 1.3
	4+	89.1 $\pm$ 6.9	12.2 $\pm$ 1.7	95.7 $\pm$ 7.0	11.4 $\pm$ 1.8
	5+	101.3 $\pm$ 3.6	13.2 $\pm$ 1.4	103.0 $\pm$ 7.7	13.1 $\pm$ 2.3
M.P. Other Tribe	1+	72.3	8.0	72.4	7.6
	2+	81.5	9.7	78.2	9.0
	3+	86.2	11.0	86.1	10.8
	4+	93.0	12.4	95.2	12.1
	5+	98.9	13.7	100.4	14.1
NCHS	1+	82.4	11.5	80.9	10.8
	2+	90.4	13.5	89.5	13.0
	3+	99.1	15.7	97.9	15.1
	4+	106.6	17.7	105.1	16.8
	5+	113.1	19.7	111.6	18.6

Table 2: Percent prevalence of malnutrition (S.D. classification)

Indicator	<-3 S.D	-3 S.D to -2 S.D	-2 S.D to 1 S.D	<-1 S.D. to Median	$\geq$ Median
Weight for age (Under weight)	26.2	33.6	28.2	7.9	3.9
Height for age (Stunting)	18.3	24.7	25.2	16.0	14.9
Weight for height (Wasting)	5.8	29.2	33.6	11.3	9.9

Table 3: Percent prevalence of nutritional deficiency signs of Kodaku

Age group (in years)	Clinical Signs					
	Mara-smus	Bitots spots	Night blindness	Angular	Sto-goiter	Dental caries
1-3	0	0.2	0.0	0.2	0.0	0.2
3-5	0	0.7	1.7	0.4	1.7	2.8
Pooled 1-5 years	0	0.9	1.7	0.6	1.7	3.0

NNMB for the tribals and NNMB (16.4%) for the rural Madhya Pradesh (NNMB, 2000 and 2002). The present study revealed that prevalence of malnutrition in the form of wasting, stunting, and under-weight in the one-fourth Pre-school children. The nutritional status of Kodaku is poor than that of the other tribals and general rural population of Madhya Pradesh. Therefore positive inputs are needed to improve growth and to overcome body weight deficits. Preventive measures are needed to improve food security, Strengthen the supplementary feeding programs and also need to encourage the mother for introduction in weaning and supplementary foods made from locally available.

ACKNOWLEDGEMENT

We wish the invaluable assistance and extraordinary efforts of Sri Markam, Asstt. Commissioner Tribal welfare, Sarguja District for accessing full supporting carrying out field work also thanks to all team members who shared every effort with us and helped in carrying out for work smoothly.

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