

Assessment of Nutritional Status of Tribal Children: A Case of Bhumija Munda tribe of Mayurbhanj

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Abstract—This cross-sectional study was conducted in Shamakhuntha block of Mayurbhanj district in one of the tribal villages. The objectives were to assess the nutritional status of children belonging to Bhumija Munda tribe. Food consumption pattern of these tribal families was also conducted in participatory mode. Demographic information were collected from the mother of the children by using structured interview schedule. More than half (62.79%) children had normal weight as per their age. The percentage of underweight in the studied group was found to be 32.56 per cent. Gender difference was observed as the incidence of underweight was more among boys (35%) than girls (30.43%). Suggestions for improvement of nutritional status have been provided.

Keywords: Nutritional status, tribe, height for age, BMI, Weight for age scores

1. INTRODUCTION

Undernutrition continues to be a primary cause of ill health and mortality among children in developing countries. Developing countries like India, accounts for about 40 per cent of undernourished children in the world and it is largely due to the result of inadequacy in relation to their nutritional needs. It is a well-established fact that nutritional status is a major determinant of the health and well-being among children and there is no doubt regarding the importance of study of child nutrition status across the spatial and temporal dimensions. Children living in the backward and drought prone rural areas, urban slums and those belonging to socially backward groups like scheduled castes and tribal communities are highly susceptible to malnutrition. The condition becomes worse among the tribal communities because of their isolation from the mainstream and lifestyle.

India is a home to almost more than half of the world's tribal population. Over 84 million people belonging to 698 communities are identified as Scheduled Tribes constituting 8.20% of the total Indian population. Odisha is a tribal dominated State with the largest number of tribal communities (62), representing major linguistic groups like Dravidian, Austro-Asiatic and Indo-Aryan. Almost 44.21% of the total land area in Odisha has been declared as Scheduled area. The

total tribal population of the State is 8.15 million, who constitute 22.13% (Sahoo, 2011). A small land base, low agricultural productivity and low incomes have led to rising indebtedness, trapping tribal farm families into a vicious circle of exploitation. The life of the tribes is increasingly vulnerable due to a persistent lack of assured entitlements to their resource base.

Geographical isolation, primitive agricultural practices, socio-cultural taboos, lack of formal education, poor infrastructure facilities, improper health seeking behaviour, poverty etc. has always lead to the development of various morbidities and under-nutrition. In general, data are scanty on the anthropometric and nutritional status of various tribal populations of India (Yadav et al. 1999; Yadu et al. 2000; Khonngsdiar et al. 2002; Gogoi et al. 2002; Bose and Chakraborty 2005). Knowledge of the nutritional status of a community or a region is necessary to have a comprehensive idea about its development process, as under nutrition is one of the major health problems in developing countries. It has been recently suggested (Bose and Chakraborty 2005) that there is urgent need to evaluate the nutritional status of various tribes of India as each tribal population has its unique food habits (Mandal, 2002). With this backdrop the present survey has been carried out to record the anthropometric profile of the tribal children and to assess their nutritional status. The implications of the discussed research will help in formulating better recommendations for further research so as to reduce this nutritional burden.

2. MATERIALS AND METHODS

This cross-sectional study was conducted among 80 tribal farm families consisting of 62 tribal children representing Bhumija Munda tribe in Shamakhuntha block of Mayurbhanj district in Odisha. All children belonging to The socio-economic variables viz., age, education, literacy status, family size, annual family income, occupational time utilization, farming experience, social participation, extension participation and decision making pattern were studied. Data

were collected through personal interviews with the help of pre-tested and structured interview schedule.

This cross-sectional study was conducted in Shamakhuntha block of Mayurbhanj district in one of the tribal villages Tarajodi adopted by ICAR-Central Institute for Women in Agriculture (ICAR-CIWA), Bhubneswar under Tribal Sub Pan (TSP) Scheme. The objectives were to assess the nutritional status of children belonging to *Bhumija Munda* tribe.

3. DATA COLLECTION

The present investigation was conducted using pre-tested structured interview schedule and simultaneously, group discussion and informal interview methods were used. Observation was conducted through semi-participant method. Anthropometric measurements were taken using standard procedure (Weiner and Lourie, 1981; Jelliffe, 1966). Nutritional status of children as measured by anthropometric measurements were assessed from height for age (stunting), weight for age (underweight) and BMI for age indicators. The nutritional status of the children was evaluated according to weight-for-age and height-for-age tables identifying stunting and wasting, and the results were compared with the distributions provided by the 2007 WHO growth references (WHO, 2007). The anthropometric indices were expressed as z-scores. Children who fall more than -2 standard deviation (sd) below reference median are malnourished and those -3SD below reference median are severely malnourished. Underweight is a composite measure which measure chronic and acute malnutrition. Stunting or Height-for-age index measures linear growth retardation among children and is a measure of long term effects of malnutrition. Wasting, the weight for height measure is an index reflecting body mass in relation to body length. Wasting is used to detect cases of severe acute malnutrition (SAM) –children with - 3SD of the median being SAM cases.

4. RESULTS AND DISCUSSION

Socio-personal profile of the selected tribal farm families

The mean land holding size for the selected families was 1.2 acres. Average annual income was reported as Rs. 41,125/-. Out of these, with the percentage contribution from different sectors was, from crops-38%; livestock-24%; wage earning-21%; and, others including forest based- 17%. Studies suggest that around 90% of tribe's populations in India were depending on land directly or indirectly for their survival (Verma, 1995). Average size of households was 6. Access to assets in 94% of the cases, was with male. Limited social mobility to an extent of 12-20 km was observed among men, and among the women, it was 6-12 km. The literacy rate was 36% among male and 17% among female.

Nutritional status

Table 1 shows the nutritional status of selected tribal children. More than half (62.79%) children studied had normal weight as per their age. The percentage of underweight in the studied

group was found to be 32.56 per cent. Gender difference was observed as the incidence of underweight was more among boys (35%) than girls (30.43%). As indicated by HAZ scores, 55.81 per cent children attained normal height, 20.48 per cent were stunted and a few (2.41%) were tall. Stunting was prevalent more among boys (50%) than girls (30.43%).

The data pertaining to the BMI scores of the children shows that out of the total sample studied, 65.12 per cent had normal nutritional status. A few children were moderately undernourished (9.30%) and severely undernourished (9.30%). About 17% per cent were found to be overweight. Gender differences were observed as 13.04 per cent girls were found to be severely malnourished and 8.70 per cent girls moderately undernourished in comparison to boys among whom prevalence of severe malnutrition and moderate under nutrition was 5 per cent and 10 per cent, respectively.

Among the total children studied, 32.56% were underweight, 39.53% were stunted and 18.60% showed thinness. Chakrabarty et al (2005) showed that in all studied tribal children, 50.5 percent were underweight (weight for age) and 35.6 percent were undernourished.

Table 1: Nutritional status of tribal children of Tarajodi village in Mayurbhanj district (n=62)

Indices	Boys		Girls		Total	
	n ₁	(%)	n ₂	(%)	n	(%)
WAZ						
Normal	11	55	16	69.57	27	62.79
Underweight	7	35	7	30.43	14	32.56
Overweight	2	10	0	0.00	2	4.65
HAZ						
Normal	8	40	16	69.57	64	55.81
Stunted	10	50	7	30.43	17	39.53
Tall	2	10	0	0.00	2	4.65
BMI						
Normal	14	70	14	60.87	28	63.64
Moderately undernourished	2	10	2	8.70	4	9.09
Severely malnourished	1	5	3	13.04	4	9.09
Overweight	3	15	4	17.39	7	15.91
Obese	0	0	0	0	0	0

5. CLINICAL SIGNS OF NUTRITIONAL DEFICIENCIES

Clinical signs for various nutritional deficiencies were also observed. Children were examined for clinical signs of some deficiency diseases. Children had symptoms for vitamin A deficiency. Pale conjunctiva was observed in 39.5%, bitot spot and night blindness (in 4.65% each). Pale conjunctiva may also be indicative of iron deficiency among the studied population.

Pallor (16.28%) and pigmentation (11.63%) of skin was observed suggestive of skin infections. Deficiency of Vitamin B complex was also observed in selected children in the form of symptoms like pale (16.28%), magenta (2.33%) and red raw (2.33%) tongue. Overall oral hygiene was poor among the children. Decayed, missing and filled teeth (DMF) were observed in 18.6 per cent and dental mottling was observed in 11.63 per cent (Fig. 1).

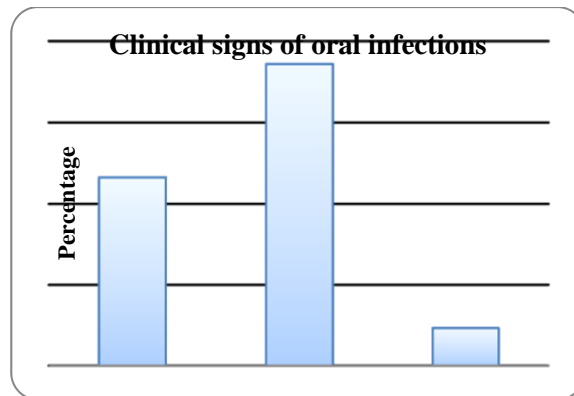
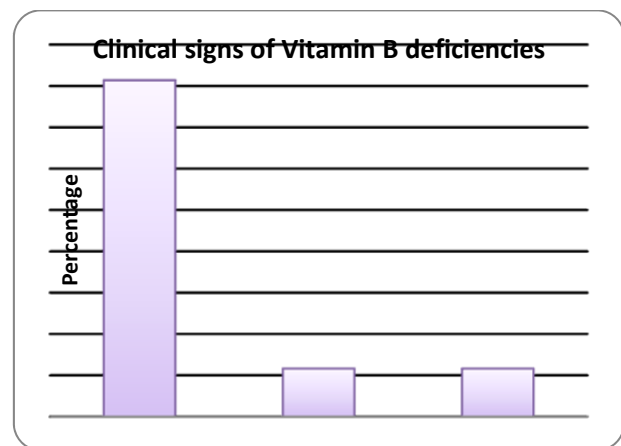
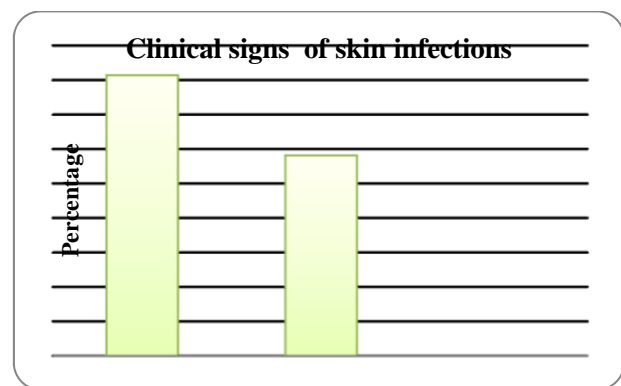
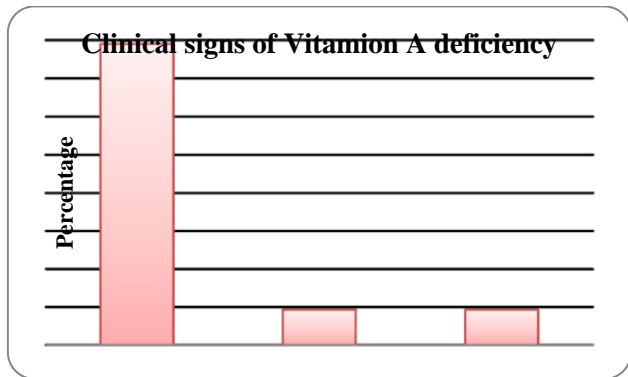


Fig. 1: Clinical manifestation of Vitamin Deficiencies among children

A medical camp was organized for the benefit of tribal families dwelling in this remote tribal village, who were deprived of the medical facilities. They were treated for diseases like, viral fever, bacillary diarrhoea, low back pain, hypertension, acute respiratory tract infection of children, scabies, tinea infection, boil and foot ulcer, gingivitis, and other minor ailments. Important tips on nutrition, health and well-being were also offered on the occasion.

As per the medical team, lack of sanitation was a major cause of the low nutritional status of children. It is reported that the basic cause of under nutrition and infection of people are poverty, poor hygienic condition and little access to preventive health care (Mitra 1997; WHO 1990).

6. FOOD CONSUMPTION PATTERN

The information on change in food intake during different seasons and lean days was also recorded. The survey was conducted in participatory approach, using 24 hours recall method. The diet of *Mundas* primarily consists of cereals, vegetables, and products from animal sources. Though they cultivate pulses, their consumption is very less as compared to cereals and vegetables. Seasonal vegetables and fruits are also consumed if grown/available in the backyard/ field/ forest. Consumption of milk and milk products were observed in the families where they were having milch animals. However the consumption of ghee/oil was observed to be poor. Rice, potato and green leafy vegetables are the staple food and consumed four-times a day. In some of the families, intake of puffed rice as breakfast was observed. Consumption of rice and non-vegetarian (meat) dishes are considered to be socially prestigious, which are mostly preferred during festivals and ceremonies along with the indigenous liquor, *Mahua*.

7. CONCLUSION

The prevalence of malnutrition was observed in the selected tribal village. Multi-sectoral approaches are strongly suggested in these tribal areas as the nutritional status of children was poor. Behaviour change interventions for mother of the selected families shall be planned on nutrition, safe cooking practices and balanced diets. As the families are agrarian, interventions like nutrition gardens can be planned in the area. Low cost, indigenous locally available food products shall be mapped in their ecosystem and tribal women shall be made aware of their nutritive value. Interventions using wild edibles to improve nutritional status shall be planned. Awareness generation about hygiene and sanitation shall be provided. Need is to create awareness among people about benefit of intensive agriculture and nutrition information. The concept of balanced diet and its importance, nutrient conservation, healthy cooking practices shall be provided to tribal farm families. Awareness regarding Vitamin C rich foods like lemon, aonla, guava, etc shall be given to improve absorption of nutrients.

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