

Research Paper :

Impact of socio-economic factors on nutritional status of tribal pre-school children

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Received : April, 2011; Accepted : June, 2011

ABSTRACT

A study on three hundred pre-school children (one to six years old) belonging to 'paroja' community of Koraput district, Orissa was undertaken to assess the prevalence of malnutrition. Information on socio-economic background of the children was collected and attempt was made to find out the possible influence of the socio-economic factors on the prevailing nutritional status. Nutritional anthropometric method was used for assessment of the nutritional status. Weight of the children was recorded with respect to their age and nutritional grading of the children was done by weight for age method of Indian Academy of Paediatrician using NCHS standard as reference. Sixty-nine per cent of the sampled children were observed to suffer from various degrees of malnutrition. Prevalence of malnutrition was more in the early ages and among the girl child. While increase in the parental education and family monthly income resulted in better nutritional status of the child; increase in the size of family was associated with the prevalence of malnutrition. Raising the economic standard of the population, educating the parents and creating awareness on the health and family care would help to improve the prevailing nutritional status in the community.

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Patro, Suryamani, Nanda¹, S. and Samantaray, P. (2011). Impact of socio-economic factors on nutritional status of tribal pre-school children. *Asian J. Home Sci.*, 6(1): 88-92.

Key words : Malnutrition, Nutritional status, Pre-school children

Nutritional status is an important indicator for assessing the state of health of an individual as influenced by nutrient intake. The state of positive health implies the notion of perfect functioning of body and mind. This is an essential requirement at childhood, as the foundation of lifetime including health, strength and intellectual ability is laid at this stage.

Body measurements are simple but reliable and objective indices of nutritional status (Devdas *et al.*, 1984). According to Walkhald (1972) nutritional anthropometry is one of the most important methods for assessment of growth and development, especially in the rapidly growing children.

Tribals are considered as one of the most backward fractions of the nation and are subjected to various levels of socio-economic exploitation. Particularly, tribal population of Orissa have been reported to lead a low standard of living (Reddy, 1986). They are forced to suffer from various forms of nutritional disorders resulting in malnutrition. Considering the ravaging effects of malnutrition, the present study was carried out to study on the nutritional status of pre-school children (1-6 yr.) of tribal community of Koraput district, one of the most backward districts of the country. Attempt was also made to assess the influence of different socio-economic factors

on the prevailing nutritional status.

EXPERIMENTAL PROCEDURE

Koraput district of Orissa, being one of the most backward districts of the country, was purposefully selected to study the prevailing nutritional status of one of the most backward tribal community 'the *paroja*'. Three heavily *paroja* dominated Community Development Blocks of the district namely, Koraput, Jeypore and Dasamantpur, were taken for the study and five villages from each block were selected at random. About one-third of the total tribal pre-school children (aged one to six years) available in these villages, totalling 300, formed the sample of the present study. Nutritional anthropometric methods was used for assessment of the nutritional status. Weight of the children was measured following the methods described by Jellife (1966) and recorded with respect to the age, sex and socio-economic background of the sample. The weight of the children was taken with the help of a modified steel yard to the nearest 100 gm. Age of the children was ascertained by the help of any documentary evidence, local calendar, harvesting season, important political occurrence, deciduous dental eruption or any such major event in the village. The socio-economic background of the family was

assessed with the help of a pre-tested questionnaire-cum-interview technique following the features described by Dahama (1997). Nutritional grading of the children was done by weight for age method of Indian Academy of Paediatrician (Park, 2000) and were categorized into normal ones and four different grades of malnourishment using NCHS standards (ICMR, 2000) as reference. The influence of the socio-economic factors on the prevailing nutritional status was analysed.

The data were analysed with the help of X^2 – test (Prasad, 2004) to find out the statistical significance, if any.

OBSERVATIONS AND ANALYSIS

Categorization of the sampled children of different age groups into normal ones and four different grades of malnourishment has been presented in Table 1. Sixty nine per cent of the children studied were found to be suffering from various degrees of malnutrition. This is a significant finding that even after sixty years of independence, a particular community of the country is suffering from the maladies of malnourishment to such a high extent. One encouraging feature noticed in this study however was that more number of malnourishment cases (*i.e.*, 38 %) fell in Grade I malnutrition and the number of representations reduced with the increase in the grade of malnutrition. A wide variety of factors including biological,

behavioural and socio-economic has been attributed to influence the health status of young children, particularly in developing countries (Rustein, 2000). In the present study, influence of socio-economic factors on the prevailing nutritional status of the children was analysed.

Age of the children:

Age wise distribution of the sampled children into normal ones and different grades of malnourishment reveals that the highest percentage of malnutrition cases was in the lowest age group *i.e.* in the age group of 1-2 yr (Table 1). The number of malnourished cases was found to decrease significantly ($p < 0.05$) with the increase in the age group. Findings of the study is in accordance with the studies by Anoop and Prema (1993) and Gijinder *et al.* (2006) that malnourishment was acute in early age group and the nutritional status improved with the increase in the age group. This may be attributed to their increased physical activity, increased appetite and also ability to self-help from the family pot as well as regular intake of supplementary foods provided by the local *anganwadi* (Khadi *et al.*, 1991).

Sex of the children:

The nutritional status of children with respect to the sex of the children has been depicted in Table 2. It can be very well observed from the table that higher

Table 1: Age wise distribution of children according to nutritional status (n=300)

Nutritional status	Age (yr) wise distribution of children (No.)					Total No. (%)	
	1.1- 2.0	2.1- 3.0	3.1- 4.0	4.1- 5.0	5.1- 6.0		
Normal	19	17	09	28	20	93 (31)*	
Malnourished	Grade I	27	26	26	16	20	115 (38.3)
	Grade II	22	17	06	10	05	60 (20.0)
	Grade III	11	02	02	04	03	22 (7.3)
	Grade IV	05	03	0	02	0	10 (3.3)
	Sub-Total (%)*	65 (21.6)	48 (15.9)	34 (11.3)	32 (10.6)	28 (9.2)	207 (69.0)
Grand total	84	65	43	60	48	300 (100)	

$\chi^2 = 39.38$, $df=12$, $p < 0.05$

Table 2: Sex wise distribution of children according to nutritional status (n=300)

Nutritional status	Sex-wise distribution of children (No.)		Total No. (%)	
	Male	Female		
Normal	47	46	93 (31.00)	
Malnourished	Grade I	50	65	115 (38.30)
	Grade II	25	35	60 (20.00)
	Grade III	10	12	22 (7.30)
	Grade IV	02	08	10 (3.30)
	Sub-total (%)	87 (29.00)	120(40.00)	207 (69.00)
Grand total	134	166	300 (100)	

$\chi^2 = 4.07$, $df=5$, $p > 0.05$

Table 3 : Relationship of parental education with nutritional status (n=300)							
Parental education	Nutritional status					Total malnourished cases (%)	Grand total
	Grade I	Grade II	Grade III	Grade IV	Normal		
One parent literate							91 (30.3)
Both parents literate	15	10	02	1	18	28 (9.3)	46 (153)
Both parents illiterate	79	21	13	07	43	120 (40.0)	163 (54.3)
Total	115	60	22	10	93	207 (69)	300 (100)

$\chi^2 = 21.4$, $df=6$, $p < 0.005$

Table 4: Relationship of size of family with nutritional status							
Size of family	Nutritional status					Total malnourished cases (%)	Grand total
	Grade I	Grade II	Grade III	Grade IV	Normal		
4 or less	09	03	0	03	34	15 (5.0)	49 (16.33)
5 to 7	40	17	08	05	56	70 (23.3)	126 (42.0)
8 or more	66	40	14	02	03	122 (43.6)	125 (41.67)
Total	115	60	22	10	93	207 (69)	300 (100)

$\chi^2 = 13.4$ $df=6$, $p < 0.05$

Table 5: Relationship of monthly per capita income with nutritional status (n=300)							
Monthly per capita income (Rs.)	Nutritional status					Total malnourished cases (%)	Grand Total
	Grade I	Grade II	Grade III	Grade IV	Normal		
< 100	23	07	03	03	06	36 (12.0)	42(14.0)
101 - 200	64	24	11	06	71	105(35.0)	176(58.66)
201 - 300	17	17	07	01	11	42(14.0)	53(17.66)
> 300	11	12	01	0	05	24(8.0)	29(9.66)
Total	115	60	22	10	93	207(69)	300(100)

$\chi^2 = 19.8$, $df=9$, $p < 0.02$

percentage of female children (*i.e.* 40 %) were found to be suffering from different grades of malnutrition, while only 29% of males fell in this category. The number of female children in each grade of malnutrition was also higher than their male counterparts, which is not the case with the normal children. This may be attributed to the prevailing sex biasness in the community, where male children are being better looked after with respect to their food and health care (Ray *et al.*, 1999). This may also be due to the higher food and nutrient intake by male children than their female counterparts (Verma *et al.*, 2010).

Parental education:

It is clearly evident that education of parents has direct bearing on the nutritional status of the children (Table 3). 40 % of the children suffering from different grades of malnutrition were from the parents both of whom were illiterate, while the malnourished cases were just 9 % when both the parents were literate. The number of malnourished cases is inversely related with the literacy level of the parents in each and every grade of

malnutrition. Thus, parental education has significant influence ($p < 0.05$) on the nutritional status of the children. Ray *et al.* (1999) and Swami *et al.* (2000) have reported a direct relationship of the education level of parents with the nutritional status of children in their respective studies. This may be due to the increased awareness of the educated parents on the health and nutritional needs of growing children.

Size of families:

It can be observed also from Table 4 that maximum percentage of children (*i.e.* about 44 %) suffering from various category of malnourishment were from large families (with 8 or more members). It is also clearly indicated that the size of family has significant influence on the nutritional status of the children. Swami *et al.* (2000) observed that prevalence of PEM increased significantly with increase in family size. This may be attributed to the fact that children from smaller families are generally well looked after as parents have time and money to provide adequate nutritional and health care. Such children are

Table 6: Relationship of type of family with nutritional status

Type of family	Nutritional status					Total malnourished cases (%)	Grand Total
	Grade I	Grade II	Grade III	Grade IV	Normal		
Nuclear						155 (51.7)	221 (73.67)
Joint	27	17	5	03	27	52 (17.3)	79 (26.31)
Total	115	60	22	10	93	207 (69)	300 (100)

$\chi^2 = 5.5$, $df=3$, $p>0.05$

less likely to develop any form of nutritional disorders (Park, 2000).

Monthly per capita income of families:

Highest percentage (*i.e.*, 35%) of malnourished cases was observed in families with monthly per capita income of Rs. 101 to 200, while the least percentage (*i.e.*, 8%) was seen in families with the highest per capita monthly income (*i.e.*, Rs. 300 and above) (Table 5). These figures indicate a significantly ($p < 0.02$) inverse relationship between the income level of the family and the nutritional status of the children. Sumita and Manoranjan (1990) from their study on the pre-school children of Himachala Pradesh concluded that family monthly income is inversely related with the rate and degree of malnutrition. Devi *et al.* (1990) and Anoop and Prema (1993) also opined in similar lines. This may be due to the fact that the families with higher income have better purchasing power, can buy good quality, quantity and variety of foods, which the poorer families are unable to do.

Type of family:

As high as 52 % of malnourished cases were seen in nuclear families, which is about three times the case in joint families (Table 6). This may be attributed to the fact that the nuclear families are the predominant family types (*i.e.*, above 73%) of the sampled population. The lower incidence of malnutrition in joint families may also be attributed to the presence of more number of adult members in joint families that might be contributing more to the family income and thus can provide better health and nutritional care to the child.

Prevalence of malnutrition among the pre-school children of 'paroja' community of Koraput district to such a high extent is a matter of great concern. Raising the economic standard of the population by providing alternate employment opportunity, educating the parents and creating awareness on the health and family care would help to improve the prevailing nutritional status in the community.

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