Assessment of nutritional dificiency of pre-school children in Surendra Nagar city of Gujarat

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■**ABSTRACT :** Pre-school children of Surendranagar city were selected as sample. The study has been done in 100 Anganvadi on 1000 respondents. It was found that only 136 pre-school children had nutritional deficiency out of 1000 and also they had dental problem more than any other deficiency. Out of all, about 13.6 per cent pre-school children had different types of nutritional deficiency. Out of total, 3.5 per cent pre-school children had dental fluorosis, 3.4 per cent had dental caries, 3 per cent had phrynoderma, 2.1 per cent had bitot spot and 1.6 per cent had conjuctival xerosis.

Children are future of any country. Health of the children is very important in every aspect. Health is affected by the way we live. It is also affected by the environment, economic status, social status and education. Children below 5 year can not take food what they want, also they like sweet food more. Keeping all this in mind,this subject was selected for study.

Malnutrition is the condition that results from eating a diet in which certain nutrients are lacking, in excess (too high an intake), or in the wrong proportions. The verb form is "malnourish"; "malnourishment" is sometimes used instead of "malnutrition". A number of different nutrition disorders may arise, depending on which nutrients are under- or over-abundant in the diet. In most of the world, malnutrition is present in the form of under-nutrition, which is caused by a diet lacking adequate calories and protein not enough food, and of poor quality. Extreme undernourishment is starvation, and its symptoms and effects are inanition. While malnutrition is more common in less-developed countries, it is also present in industrialized countries. In wealthier nations it is more likely to be caused by unhealthy diets with excess energy, fats and refined carbohydrates. A growing trend of obesity is now a major public health concern in lower socio-economic levels and in developing countries as well.

The World Health Organization has reported hunger and related malnutrition as the greatest single threat to the world's public health. Improving nutrition is widely regarded as the most effective form of aid. Nutrition-specific interventions, which address the immediate causes of undernutrition, have been proven to deliver among the best value for money of all development interventions. Emergency measures include providing deficient micronutrients through fortified sachet powders or directly through supplements. WHO, UNICEF and the UN World Food Programme recommend community management of severe acute malnutrition with ready-to-use therapeutic foods, which have been shown to cause weight gain in emergency settings. The famine relief model increasingly used by aid groups calls for giving cash or cash vouchers to the hungry to pay local farmers instead of buying food from donor countries, often required by law, to prevent dumping from hurting local farmers.

Long term measures include fostering nutritionally dense agriculture by increasing yields, while making sure negative consequences affecting yields in the future are minimized. Recent efforts include aid to farmers. However,

World Bank strictures restrict government subsidies for farmers, while the spread of fertilizer use may adversely affect ecosystems and human health and is hampered by various civil society groups.

Nair (2007) in his study on 'Malnourishment among children in India: a regional analysis' analyzed inter-state differentials in malnourishment among children in India on the basis of the National Family Health Survey, 1992-93, 1998-99 and 2005-06. It finds the Integrated Child Development Services suited to tackle these aspects and suggest extending it and making it more oriented towards reducing child malnourishment

Objective of the study:

To assess the nutritional status of individuals in terms of anthropometry and prevalence of clinical sign of nutritional deficiencies.

■ **RESEARCH METHODS**

The entire individual covered for anthropometry was examined for presence of clinical signs of nutritional deficiencies to identify any of the following clinical signs of malnutrition.

■ **RESEARCH FINDINGS AND DISCUSSION**

Table 1 shows that about 13.6 per cent pre-school children had different types of nutritional deficiency. Out of total, 3.5 per cent pre-school children had dental fluorosis, 3.4 per cent had dental caries, 3 per cent had phrynoderma, 2.1 per cent had bitot spot and 1.6 per cent had conjunctiva xerosis (Fig. 1).

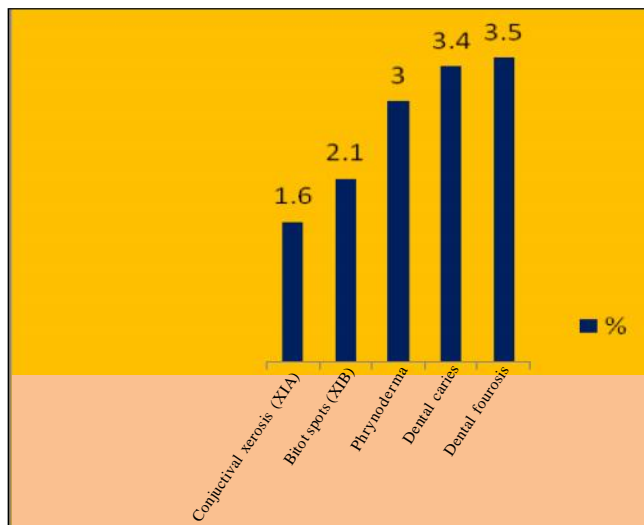So, it can be said that majority of preschool children

Fig. 1: Nutrition deficiency

had dental fluorosis and dental caries.

Though comprehensive data are not available for all diseases of malnutrition in Gujarat but some data are available on the extent of malnutrition among women and children. A state government document shows that more than 60 per cent children under the age of 5 years are either moderately or severely malnourished (Table 2). About half of the under 5 years children are in the moderate category and 12 per cent are severely malnourished.

The proportion of malnourished children, according to the study, was higher in Gujarat than in India. Also, severe malnourishment was higher among girls than boys. It is to be noted that the ICDS programme has reduced malnourishment among under 5 years children to 4-6 per cent in the severe

Table 1: Score obtained by nutritional deficiency for pre-school children			
Sr. No.	Nutrition deficiency	No.	%
1.	Conjuctival xerosis	16	1.6
2.	Bitot spots	21	2.1
3.	Phrynoderma	30	3.0
4.	Dental caries	34	3.4
5.	Dental fluorosis	35	3.5
	Total	136	13.6

Table 2: Proportion of malnourished children (1-5 year)								
	Gujarat		India		Gujarat		India	
	1994*	1998-99**	1994*	1998-99**	1994*	1998-99**	1994*	1998-99**
Total	50.8	25.1	45.1	NA	11.9	1.3	11.1	NA
Boys	54.8	23.6	45.6	NA	9.6	1.0	11.6	NA
Girls	45.7	26.7	44.6	NA	14.7	1.7	10.2	NA

Source: * Government of Gujarat (1994), ** Data from Commissionerate of Health and Medical Services (Health),   NA : Not-available

Table 3 : Nutritional status of children by background characteristics, NFHS-2

	Weight for age		Height for age		Weight for height	
	% below -3 SD	% below -2 SD	% below -3 SD	% below -2 SD	% below -3 SD	% below -2 SD
Urban	9.4	38.1	18.8	38.5	2.1	11.3
Rural	20.2	49.3	26.0	46.7	2.6	19.2
Male	14.7	40.3	20.6	42.0	2.4	13.9
Female	17.7	50.0	26.1	45.3	2.4	18.6
Scheduled caste	17.7	45.4	29.0	48.9	3.1	12.3
Scheduled tribe	24.1	56.6	29.2	46.9	3.4	21.7
OBC	18.8	49.0	26.4	46.5	2.5	18.8
Illiterate mother	25.9	57.0	34.1	55.9	3.7	20.1
Total	16.2	45.1	23.3	43.6	2.4	16.2

category and 25-30 per cent in moderate category.

Malnourishment reflects in three anthropometric indices, which are expressed in standard deviation (SD) units from the reference median. Children with more than two SDs below the reference median on any of the indices are considered to be *undernourished* and children who fall more than three SDs below the reference, median are considered to be *severely* and 14 *undernourished*. The reference median is based on the International Reference Population NFHS-1 and NFHS-2 both computed these indices for under 3 years age children. Here, NFHS–2 data are presented (Table 3). Weight-for-age is a composite measure that takes into account both chronic and acute under-nutrition. Children who are more than two SDs below the reference median on this index are considered to be underweight. About 45 per cent of children in the state are *underweight,* and in these 16 per cent are severely underweight. Percentages for female children are 50 and 18 and for rural population 49 and 20, respectively. The height-for-age index measures linear growth retardation. Children with more than two SDs below the median of the reference population are considered short for their age or *stunted*. In Gujarat, 44 per cent of under-3 years age children are stunted, and 23 per cent are severely stunted. The weight-for-height index examines body mass in relation to body length. Children who are two SDs below the median are 15 -3 years age children are wasted in Gujarat and in them 2 per cent are severely wasted. Poor nutritional status is more among rural population than urban population, among female children than male children, among children whose mothers are illiterate and among ST and SC households. On the whole, the extent of undernourishment among children aged 3 years and below is quite high in Gujarat. NFHS-2 notes that there is hardly any change between NFHS-1 and NFHS-2 with regard to the extent of underweight and severely underweight, stunting and severely stunting (IIPS and MEASURES DHS+ 2001: 168). What has declined is prevalence of wasting and severely wasting among children. Ayesha and Raghuramulu (1999) have worked on vitamin D deficiency and insulin homoeostasis. Bhaskaram (2001) and Bhaskaram and Kamala (2001) aslo worked on malnutrition and vitamin A strategies.

Conclusion:

Out of all about 13.6 per cent pre-school children had different types of nutritional deficiency. Out of total 3.5 per cent pre-school children had dental fluorosis, 3.4 per cent had dental caries, 3 per cent had phrynoderma, 2.1 per cent had bitot spot and 1.6 per cent had conjunctiva xerosis.

It was found that only 136 pre-school children had nutritional deficiency out of 1000 and also they had dental problem more than any other deficiency. Because in Surendranagar district there are more fluoride in water

more problem is regarding dental fluorosis. It was also found that out of 1000 children only 77 had morbidity of which majority of them are having acute respiratory infection.

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■ REFERENCES

Ayesha, Ismail and Raghuramulu, N. (1999). Vitamin D deficiency and insulin homoeostasis. *Nutrition News,* **20**(3):1-4.

Bhaskaram, P. (2001). The cycle of malnutrition and woman's health. *Nutrition News*, **22**(4):1-4.

Bhaskaram, P. and Kamala, Krishnaswami (2001). Vitamin A supplementation strategies –Indian status. In: *Benefits and safety of administration of vitamin A to pre-school children and pregnant and lactating woman.* Ed. Umesh Kapil, Srinivas, V.K., Ministry of Health and Family Walfare, New Delhi, AIIMS, pp. 45-58.

Kulkarani, Bharati, Shtrugna, Veena and Balakrisna, N. (2006). Maternal lean body mass may be the major determinant of birth weight: a study from India. *Euro. J. Clin. Nutri.*,**60** (11):1341-1344.

Nair., K.R.G. (2007). Malnourishment among children in India: A regional analysis, Economic and Political Weekly, September 15, pp. 3797-3803.

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