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Clinical Assessment of Health and Nutritional Status of Scheduled Caste Preschool Children of Amritsar

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ABSTRACT Health and nutritional status of Scheduled Caste preschool children of Amritsar district of Punjab was studied with the help of clinical examination, and height and weight measurements. A total of 1,000 children (528 boys and 472 girls) formed the study group. With clinical symptoms, the prevalence of various deficiencies was estimated. With measurements of height and weight, the prevalence of undernutrition was also determined. A close proximation was observed in the appearance of deficiency symptoms and undernutrition between boys and girls, depicting their poor state of health and nutrition.

INTRODUCTION

Preschool children in India constitute about 16% of the total population as against 7% in the technologically advanced countries. The children up to the age of 5 years are vulnerable from the nutritional standpoint. The main reason for this vulnerability is the easy susceptibility to malnutrition and infection. For assessing health and nutritional status of a community, clinical examination has always been and remains an important practical method. The method is based on the examination for changes believed to be related to inadequate nutrition that can be seen or felt in superficial epithelial tissues, especially skin, eyes, hair and buccal mucosa. In the present study, an attempt has been made to evaluate the clinical health and nutritional status of Scheduled Caste preschool children of Punjab.

MATERIALS AND METHODS

The present study was carried out on 1,000 children (528 males and 472 females) between the age group of 1 to 5 years from Mahl, Tung, Karimpura, Faizpura, Gumtala, Gwalmandi and Nai Abadi of Amritsar district, which are the pockets of Scheduled Caste populations. All the subjects were drawn from various Anganwadis, Balwadis and Harijan settlements. All the subjects were examined clinically for the presence of signs of nutritional deficiency. The observations were taken according to Jelliffe (1966). For the assessment of anaemia, blood samples were also collected. A written informed consent was obtained from each child's parents prior to participation. The estimation of haemoglobin level was done by cyanomethaemoglobin method (Dacie and Lewis, 1991). The grading of anaemia was done as per the WHO guidelines (WHO, 1989). Height and weight measurements were also taken following the general procedure as given by Weiner and Lourie (1981). The grading of nutritional status by weight-for-age criteria had been done by the Gomez classification (Gomez et al., 1955).

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RESULTS AND DISCUSSION

Table 1 gives the prevalence of signs and symptoms of different nutritional deficiencies. Out of 1,000 children examined, 255 children (25.55%) were found to be suffering from protein energy malnutrition. 25.18% of boys and 25.85% of girls had protein energy malnutrition. WHO (1986) reported that protein energy malnutrition is a very common condition among the children less than 5 years of age in poor countries. In some countries, 4 out of 5 young children have some degree of this malnutrition and one out of 10 will be seriously affected by it. This indicates that there are millions of children with protein energy malnutrition in the world.

The presence of Bitot's spot and Conjunctival Xerosis indicates the presence of vitamin A deficiency. Out of the total sample studied, 62.80% of children were noticed to suffer from vitamin A deficiency (Table 1). Sampathkumar and Abel (1993) reported that in Asia alone, over 250,000 children are found to go blind every year on account of vitamin A deficiency. Khandait et

Table 1: Number and percentage prevalence of different nutritional deficiency symptoms in Scheduled Caste preschool children (sexes separately examined) in Amritsar

Clinical parameters	*Boys (N=528)*		*Girls (N=472)*		*Total (N=1000)*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Protein energy malnutrition	133	25.18	122	25.85	255	25.55
Vitamin A deficiency	331	62.19	297	62.92	628	62.80
Vitamin B deficiency	41	7.76	33	6.99	74	7.40
Vitamin C deficiency	367	69.51	311	65.89	678	67.80
Vitamin D deficiency	378	71.59	303	64.19	681	68.10
Incidence of dental caries	62	11.74	41	8.69	103	10.30
Incidence of fluorosis	399	75.57	347	73.52	746	74.60
Iron deficiency	375	71.02	341	72.24	716	71.60

al. (2000) studied the low socio-economic group children and observed the frequency of vitamin A deficiency in 35.70% children. Chary (2000) indicated that Indian preschool children continue to consume less than 50% of the recommended dietary intake of vitamin A despite considerable socio-economic development.

The magenta-coloured tongue, swollen tongue and a trophic papillae were the various clinical features, indicating the presence of vitamin B deficiency. 7.40% Scheduled Caste children were deficient in vitamin B. The comparison of boys and girls did not reveal much difference in their percentage values. The incidence of vitamin B is less in the studied population compared to other vitamin-deficiency symptoms. This may be because of the fact that diet is cereal-based and leafy vegetables, particularly mustard leaves, spinach, coriander and mint, etc., which is a part of the diet in the Scheduled Castes and fulfill the requirements of this vitamin to certain extent.

Scurvy, a disease of vitamin C deficiency, is characterized by sporogy and bleeding gums. In the present sample, 67.80% children were found deficient in vitamin C (Table 1). The frequency of this symptom was more in boys (69.51%) than in girls (65.89%).

The abnormality in skeletal development, like knocked knees and bowed legs, indicates the presence of rickets and osteomalacia. In this sample, 68.10% of children suffered from vitamin D deficiency. The boys maintained a higher incidence (71.59%) than did the girls (64.19%). Since the diet of Scheduled Caste children was lacking in animal food and fat consumption was also lesser than the recommended amount (Uppal, 2002), it might be leading to higher prevalence of vitamin D deficiency. Rao et al. (2000) reported 20.30% vitamin D deficiency in slum boys of 0-2 years. Singh et al. (1992) were of the view that the diet of Indian infants and children consists primarily of cereals, which provide very little vitamin D, and we, in India, rely heavily on sunshine as natural source of vitamin D.

Jellifee (1966) reported the incidence of dental caries to be known to closely associated with highly milled carbohydrates and use of sugar. 10.30% of Scheduled Caste children showed the development of cavities. More boys (11.74%) were suffering from cavities in comparison to the girls (8.69%). Enamel erosion or fluorosis is characterized by the presence of mottled enamel. The prevalence of mottled enamel was 75.57% and 73.52% for boys and girls, respectively. Srikantia (1989) reported that fluorosis is not a deficiency disease but a food and water-related disorder endemic in some parts of the country, including Punjab. The presence of pallor of eyes and pale complexion indicates that the child is suffering from the deficiency of iron. On the basis of clinical pallor, 71.60% of Scheduled Caste children were detected to be anaemic. Haemoglobin estimation (Hb g/dl) showed that about 92.40% of Scheduled Caste preschool children had different grades of anaemia (Table 2).

Weight-for-age is a good indicator of nutritional status of children. The weight of the children was evaluated against the National Centre for Health Statistics (NCHS, 1977) standard of weight-for-age and graded according to Gomez classification (1955). The frequency of mild (35.10%) and moderate (40.20%) undernutrition was very high (Table 2). A comparison of male and female children indicates that only 11.23% of girls and 7.39%

Table 2: Nutritional status of Scheduled Caste preschool children of Punjab

Nutritional parameters		*Boys (N=528)*		*Girls (N=472)*		*Total (N=1000)*	
		Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Haemoglobin Level (Hb g/dl)							
> 11	(Normal)	47	8.90	29	6.14	76	7.60
10.0-10.9	(Mild)	42	7.95	28	5.93	70	7.00
07.0-09.9	(Moderate)	392	74.24	373	79.03	765	76.50
< 07	(Severe)	47	8.90	42	8.90	89	8.90
Undernutrition Grades (According to Gomez Classification)							
> 90%	(Normal)	39	7.39	53	11.23	92	9.20
75.0-89.9%	(Mild)	205	38.83	146	30.93	351	35.10
60.0-74.9%	(Moderate)	208	39.31	194	41.10	402	40.20
< 60%	(Severe)	76	14.39	79	16.74	155	15.50

of boys were normal. On the whole, about 90.80% children suffered from various grades of undernutrition. Thus, the health and nutritional status of Scheduled Caste preschool children of Amritsar district of Punjab was, on the whole, very poor. The government should take effective steps to improve the nutritional status of Scheduled Caste preschoolers by monitoring and improving the existing supplementary feeding programmes.

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