The Estimation of Haemoglobin Status among the Children of Dharwad Slums

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ABSTRACT: The science of nutrition aims at providing quantitative and qualitative requirements in diets for the maintenance of good health of normal adults, growing children, pregnant women, lactating mothers and old age people. There are different parameters which are employed in the study of nutritional status, namely anthropometry, examination of clinical signs, estimation of hemoglobin and 24 hours dietary intake method. In this paper, an attempt has been made to study the haemoglobin estimation of the children of Dharwad slums to assess their anaemic status. Out of total sample size of 1400 children, only 924 were examined for haemoglobin estimation. Out of these only 5.30% of girls and 7.07% of boys show normal haemoglobin status i.e. above 11 gms, whereas the remaining boys and girls exhibit various grades of anaemia. This is primarily because of the fact that they belong to lower socio-economic status and their intake of nutritional diet is poor.

INTRODUCTION

Nutrition is one of the critical factors which influences health, growth and the development among children. It also affects the health of those children when they become adults. Childhood is a period of rapid growth where nutrients are required both for growth and for the maintenance of the existing body tissues. Although nutrient requirements are proportionately higher amongst children, they are less able to adapt physiologically to changes in the quantity of food available and their ability to digest foods is less mature. In addition to the physiological importance of nutrition, attitude towards food choice during childhood later plays an important role in the adulthood and also in old age.

Malnutrition is a multifaceted problem. Malnutrition means an undesirable kind of nutrition leading to ill-health resulting from lack, or excess or imbalance of nutrients in diet. It includes under nutrition and over nutrition, where under-nutrition implies the state of an insufficient supply of essential nutrient and over-nutrition refers to an excessive intake of one or more nutrients creating stress in the bodily functioning (Mudambi and Rajgopal, '90)

MATERIAL AND METHODS

Present study comprises of a total sample size of 1400 children (705 boys and 695 girls) of 6+ years to 12+ years of age-groups. Data were collected from 7 slums distributed in Dharwad town. The children were drawn from different poor socio economic backgrounds.

There are four important methods of assessing the nutritional status viz. anthropometry, examination of clinical signs, bio-chemical test of haemoglobin level, and 24 hours dietary intake method. In the present study, focus has been made on the estimation of haemoglobin level to assess the nutritional status of Dharwad slum children. Out of sample size of 1400, only 924 children co-operated to undergo the

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TABLE 1

Age-wise and sex-wise distribution of children for the present study

Age-groups (in years)	Boys	Girls	Total
6+	95	100	195
7+	98	95	193
8+	114	100	214
9+	98	94	192
10+	100	98	198
11+	100	100	200
12+	100	108	208
Total	705	695	1400

haemoglobin estimation test. Age of the children was recorded on the basis of school records.

In the present study haemoglobin levels were tested by Sahli method (acid haematin method) because, it was not possible to collect venous blood samples because of the limitations of carrying out the test and subjects were also against giving their venous blood samples. Sahli test was done on the spot itself, according to the methodology suggested by Bharucha *et al.*, ('82).

RESULTS AND DISCUSSION

Biochemical investigation of haemoglobin status represents the most objective assessment of nutritional status of an individual frequently providing subclinical information. These biochemical tests reveal deficiency or excess of any nutrients before the symptoms are clinically apparent. In many instances the nutrient intakes are reflected in the blood or urine. The levels of haemoglobin indicate the inadequate, adequate or high dietary intakes of nutrients. Haemoglobin status which is a common biochemical test indicates the iron status of an individual.

The grading of anaemia is done as per the WHO guidelines (WHO, '89):

Haemoglobin Level (Hb g/d)

> 11	(Normal)
10.0 – 10.9	(Mild)
07.0 – 09.9	(Moderate)
< 07.0	(Severe)

TABLE 2

Haemoglobin status of the present study according to WHO guidelines (WHO, '89)

Anaemia Status	Boys (N = 452)		Girls (N = 472)		Total (N = 924)	
	N	%	N	%	N	%
Normal	32	7.07	25	5.30	57	6.16
Mild	215	47.57	230	48.73	445	48.16
Moderate	195	43.14	205	43.42	400	43.30
Severe	10	2.22	12	2.54	22	2.38
Total	452	100	472	100	924	100

In the present study out of 1400 subjects only 924 subjects were examined for haemoglobin estimation as shown in Table 2. Out of these, 7.07% of boys and 5.30% of girls show normal grade of haemoglobin level. While 47.57% boys and 48.73% girls exhibit mild anaemia. Moderate range includes 43.14% of boys and 48.73% girls. And finally 2.29% of boys and 2.54% of girls exhibit severe form of anaemia.

TABLE 3

Prevalence of anaemia among children in different States of India

States	Anaemia (%)
Kerala	33.6
Maharashtra	54.4
Tamil Nadu	62.3
Andhra Pradesh	70.8
Karnataka	70.9
Madhya Pradesh	76.6
West Bengal	81.2
Orissa	92.4
Pooled States	68.60

Source: National Nutrition Monitoring Bureau, 2002.

Table 3 indicates the prevalence of anaemia among children in different States of India.

CONCLUSION

It is evident from the results of the present that only 7.07% of boys and 5.30% of girls exhibit normal haemoglobin status i.e. above 11 gms. Whereas the remaining children, more than 92%, suffer from various grades of malnutrition. Mild, moderate and severe categories of anaemia are found more among boys as compared to girls. The prevalence of lower

grades of anaemia is mainly because of their lower socio-economic conditions and poor intake of nutritious diet.

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