

## Nutritional status of pre-school children as per their anthropometric measurement in different zones of rural Haryana

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### ARTICLE INFO :

#### Article history :

Received : 16.03.2012  
Sent for revision : 25.04.2012  
Accepted : 02.05.2012

#### Key words :

Nutritional status, Malnourishment, Anthropometric measurement

#### How to cite this Article :

Baskaur, Rani, Jyoti and Devi, Urmila (2012). Nutritional status of pre-school children as per their anthropometric measurement in different zones of rural Haryana, *Adv. Res. J. Soc. Sci.*, 3 (1) : 44-46.

### ABSTRACT

The present investigation was conducted on the sample of 450 pre-school children of rural Haryana. Haryana state has been divided into three different agro-climatic zones namely, hot and dry, hot and semi-dry and hot and humid. A multi-staged random sampling techniques was adopted for collection of data. Data were collected with the help of self-prepared interview schedule by paying and repeated visit to the study area. The percentage level of weight for age and height for age was calculated by comparing with NCHS (National Centre of Health Statistics). The study reported that maximum malnourishment (77.11%) was obtained with the implication of weight-for-age and again the majority *i.e.* 70.66 per cent of the children were found to be undernourishment as per their height-for-age.

## INTRODUCTION

In India, malnutrition arising from inadequate food supply, is a major cause of illness and it serves as an important cause of child mortality. A report on child nutrition in India indicated high level of both chronic and acute malnutrition among the Indian children. Fifty two per cent of all children below age four were stunted, 54 per cent were under-weight and 17 per cent were wasted. The extent of severe malnutrition was also substantial. Twenty nine per cent of the children were severely wasted according to internationally accepted definitions. The lower prevalence of wasting than stunting or under-weight indicated that chronic malnutrition was more prevalent in India than acute malnutrition (Mishra *et al.*, 1999).

Malnutrition in children and pregnant women could lead to stunted growth, impaired mental development, learning and behaviour. This is due to inadequate food intake and utilization

of food nutrients which if prolonged could result in protein-energy malnutrition (Igbedioh, 1990). About 60 per cent of pre-school children were underweight and 62 per cent were stunted. 15 per cent of the children of 1-5 years of age suffered from wasting (Vijayaraghvan and Hanumantha Rao, 1998.) With report to weight-for-age the degree of malnutrition were found among 38.6 per cent male and 43.3 per cent among female children. 38.1 per cent male and 41.2 per cent female children with respect to height-for-age were normal and remaining suffered from various grade of under nutrition (Awasthi *et al.*, 2000). Among pre-school children thirty five per cent were under weight and 199 million children suffered from protein-energy malnutrition (Lupien and Menza, 1999).

## METHODS

Sample for the study comprised to 450 children in the age

group of 1-6 years of age representing all the, agricultural zones of rural Haryana. Anthropometry measurement and dietary Inquiry were made use for assessing the nutritional status of the selected subjects. Different parameters such as the weight-for-age and height-for-age were selected under anthropometry measurement, twenty four hour recall was administered under the context of dietary enquiry.

### OBSERVATIONS AND ANALYSIS

The interference drawn highlighted the fact that majority (77.11%) of the children were found to be malnourished as per their 'weight for age' of the children was concerned and the remaining percentage of children *i.e.* 22.89 were reported to be normal (Table 1).

Further, analysis of the same had stated the fact that out of the total undernourished children, the category of the 'moderate' undernourishment was relatively high (32.89%), followed by 'Mild' and 'Severe', the percentage being 27.33 and 16.89, respectively. A similar trend with little variations was observed by Verma *et al.* (1980), Devi *et al.* (1997) and Bhat *et al.* (1997). The trend depicted by Verma *et al.* was slightly on higher side of malnutrition (80%), whereas the remaining scholars had moved towards lower range while depicting their finding as these were 64 and 60.45 per cent, respectively.

The 'height for age' assessment of the children reported the fact that like 'weight for age' the majority (70.66%) of the selected children were found to be undernourished whereas minority (29,34%) was reported to be normal (Table 1).

Their further analytical interpretation of the findings revealed that category of the 'weight for age' higher prevalence of 'mild' category of undernourishment (32.00%) was reported, followed by 'moderate' and 'severe' form of undernourishment the percentage being 29.56 and 9.11, respectively. The study conducted by Verma *et al.* (1980) and Devi *et al.* (1997) had shown relatively lower ranges of malnutrition when 'height for age' of the children was taken into consideration the percentage 53 and 64.7, respectively (Table 1).

Conclusively it could be stated that maximum malnourishment (77.11%) was obtained with the implication of 'weight for age'. Not only that maximum but 'severe' form of malnourishment (16.89%) was also observed with the help of the same parameters.

#### Weight for age:

The zonal analytical interpretation of the findings in Zone I (hot and dry) has found repeating the trend reported by the finding analysis in general which had stated the relatively high percentage of the total under nourished children (77.11) in 'moderate' category (32.89) followed by 'mild' (37.33) and 'severe' (16.89), where as it was slightly different in Zone I (hot and dry) which has claimed that the relatively high percentage *i.e.* out of the total strength of under malnourishment in 'mild' category the percentage being 37.33 followed by 'moderate' (24.00) and severe (12.67) (Table 2).

#### Height for age:

The nutritional status (height for age) of the children when analyzed as per three identified different zone, the Zone I (hot

Parameters	Classification					Total
	Normal	Mild	Moderate	Severe	Undernourished	
Weight for age	103(22.89)	123(27.33)	148(32.89)	76(16.89)	347(77.11)	450
Height for age	132(29.34)	144(32.00)	133(29.56)	41(9.11)	318(70.66)	450

Figure in parenthesis denote percentage

Zone/Parameters	Nutritional status					Total
	Normal	Mild	Moderate	Severe	Undernourished	
<b>Zone I (Hot and dry)</b>						
Weight for age	39(26.00)	56(37.33)	36(24.00)	19(12.67)	111(74.00)	150
Height for age	43(28.67)	53(35.33)	41(27.33)	13(8.67)	107(71.33)	150
<b>Zone II (Hot and semi-dry)</b>						
Weight for age	34(22.67)	35(23.33)	55(36.67)	26(17.33)	116(74.00)	150
Height for age	43(28.67)	54(36.00)	41(27.33)	12(8.00)	107(71.33)	150
<b>Zone III (Hot and humid)</b>						
Weight for age	30(20.00)	32(21.33)	57(38.00)	31(20.67)	120(80.00)	150
Height for age	46(30.67)	37(24.66)	51(34.00)	16(10.67)	104(69.33)	150

Figure in parenthesis denote percentage

and dry) and Zone II (hot and semi-dry) had confirmed the trend observed by the children in general for all which had claimed 70.66 per cent of undernourishment in general and out of which 32.00 per cent in 'mild' followed by 29.56 per cent in 'moderate' and 9.11 per cent in 'severe' whereas the Zone III (hot and humid) had shown slight variation by claiming relative majority 'moderate' (34.00%) out of the total strength of undernourishment followed by Mild (24.66%) and severe (10.67%)(Table 2).

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