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Nutritional Status of Children under Five Living in Rajupalem

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ABSTRACT

Childhood undernutrition is an important public health and development challenge in India. Undernourished children have significantly higher risk of mortality and morbidity. Besides increasing the risk of death and disease, undernutrition also leads to growth retardation and impaired psychosocial and cognitive development. The assessment of growth is crucial for child care and reference data are central to growth monitoring. The objective of the study is to assess the height, weight and MUAC (mid upper arm circumference) of children in order to monitor growth and assess the nutritional status of children under -five years of age. The present study involves the measurements of 3 anthropometric dimensions from a total of 120 (60 boys and 60 girls) children, aging from 0-5yrs old. Each dimension for each gender was averaged and plotted in a graph against the children's corresponding ages. Height, weight and MUAC percentile data was calculated and charts generated. The results revealed that 50% boys are underweight and 48% girls are underweight, 52% boys are stunted and 48% girls are stunted, 5% boys are wasting and 13% girls are wasting. Overall in 120 sample of under-five children: underweight, stunting and wasting are 49%, 46% and 9% respectively. Among boys sample: underweight, stunting and wasting are50%, 51.7% and 6.7% respectively. Among girls of 60 under-five children: underweight, stunting and wasting are 48%, 40% and 13% respectively. More effective intervention programmes are needed to accelerate the reduction of underweight, stunting and wasting in under-five aged children.

Key words: *Growth assessment, Nutritional status, Under –Five children, Anthropometry, India.*

INTRODUCTION

Malnutrition among under-five children is a major public health problem in India. This is reflected by the fact that the prevalence of under-weight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa[1]. It is also observed that the malnutrition problem in India is a concentrated phenomenon that is, a relatively small number of states, districts, and villages account for a large share of the malnutrition burden- only 5 states and 50% of villages account for about 80% of the malnutrition burden[1].

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Every year approximately 2.3 million deaths among 6-60 months aged children in developing countries are associated with malnutrition, which is about 41% of the total deaths in this age group[2]. A recent study, among children aged between 3 months and 3 years of age conducted in 130 districts through Demographic and Health Surveys in 53 countries over a period from 1986 to 2006 found that – variance in mild under-weight has a larger and more robust correlation with child mortality than the variance in severe under-weight[3]. The study concluded that the prevalence of mild under-weight deserves greater attention as a useful signal of changing public health conditions among preschool children in developing countries[3].

Millennium Development Goal 1 (Target 2) aims to halve, between 1990 and 2015, the proportion of people who suffer from hunger as measured by the prevalence of under-weight among under-5 years children[4]. The need of the hour is to examine the burden of under-nutrition and obesity, study its determining factors and assess the effectiveness of the various approaches to combat malnutrition among under-five children. The factors related to nutrition and growth monitoring affects the malnutrition status of children[5].

Undernutrition is one of the most concerning health and development issues in India as in other parts of the world. Undernutrition encompasses stunting (chronic malnutrition), wasting (acute malnutrition) and deficiencies of micronutrients (essential vitamins and minerals). According to National Survey - NFHS-4 2015-16 survey in Andhra Pradesh[7] children under five who are Stunted (height-for age) are 28.3 percent are from urban and 32.5 percent are from rural areas. Where as 15.5 percent of Children under five from urban and 17.8 percent of Children under five from rural areas fell into category of wasted (weight-for age). Children under five with Sever wasted (weight-for-height) are 4.8 percent are from urban and 4.4 percent are from rural. 28.4 percent of urban Children under five and 33.1 percent of from rural Children under five are under weight (weight-for-age).

MATERIAL AND METHODS/ DEFINITIONS AND PRELIMINARIES

Operational Definition

Malnutrition: It refers to undernutrition resulting from inadequate consumption, poor absorption or excessive loss of nutrients, but the term can also encompasses over-nutrition, resulting from excessive intake of specific nutrients[7].

Anthropometry: Use of measurements of dimensions of the human body known as anthropometry.

Sampling:

The study was conducted in a village Rajupalem, Guntur district, Andhra Pradesh, India. The study sample of under-five years was randomly collected which included 60 girls and 60 boys. Thus a total sample of 120 under-five years aged children constituted the study sample.

Tools and Technique:

To measure weight a standard digital weighing scale to measure the weight of the infants and bathroom weighing scale for children above 2 years. To measure height a height measuring scale calibrated in centimeters is used to measure height of the children between 3-5 years. An infantometer is used to measure the length of the infants i.e. 0-2 years. To measure mid upper arm circumference (MUAC) Shakir measuring tape is used. To assess malnutrition Standard deviations of weight for age, height/length for age, and weight for length/height of World Health Organisation were taken as reference.

The weights, heights and MUAC of 60 boys and 60 girls were measured using necessary scales and recorded gender wise. Mean z-scores for weight for age, height/length for age and weight for height/length were computed and compared with the z-score table of the WHO standard in its website: http://www.who.int/childgrowth/standards/en. Percentiles were calculated to compare the gender variations.

RESULTS AND DISCUSSION

According to results for weight-for-age (figure no.1, 2 and table no.1) of children under five indicated that 50 percent boys and 48 percent girls fall in underweight category. Where as 8 percent of girls compared to 3 percent of boys fell in to range of overweight Almost equal percentage of boys (47) and girls (43) fell into normal range of weight for age. similar results were found by the National Survey (NFHS-3, 2005-2006), which showed that 43% children under age of five years are underweight. Overweight is an increasingly important issue all over the world over 20 developing countries have rates above 5 per cent. Childhood undernutrition and overweight co-exist in many countries, leading to a double burden of malnutrition.

52% Boys and 40% girls under-five (table no.2 and figure no. 3 and 4) are stunting and 5% of boys and 13 percent of girls fell in wasting category (table no.2 and figure no. 5). These values are less compared to boys. Overall 2.5% of children have MUAC < 11.5 which is an indication of severe acute malnutrition (SAM).

Stunting in height is due to long-term insufficient nutrient intake and frequent infections. Stunting generally occurs before age two, and effects are largely irreversible. These include delayed motor development, impaired cognitive function and poor school performance. Nearly one third of children under five in the developing world are stunted. Wasting, or low weight for height, is a strong predictor of mortality among children under five. It is usually the result of acute significant food shortage and/or disease.

According to table no.3 overall results show that 49 percent, 46 percent of children under five are under weight and stunting. very little number of children under five that is 6 percent and 9 percent fell into overweight and wasting nutritional status who need immediate Doctor suggestion and treatment respectively.

Table 1: Weight for age (N-120)

S.No	Age (years)	Weight for age											
		Normal				Under weight				Over weight			
		Boys	%	Girls	%	Boys	%	Girls	%	Boys	%	Girls	%
1	<1	6	10	5	8	2	3	5	8	0	0	1	2
2	1.1-2	4	7	8	13	4	7	1	2	0	0	1	2
3	2.1-3	8	13	10	17	5	8	9	15	1	2	2	3
4	3.1-4	2	3	1	2	6	10	6	10	0	0	1	2
5	4.1-5	8	13	2	3	10	17	4	7	1	2	0	0
6	5.1-6	0	0	0	0	3	5	4	7	0	0	0	0
7	Total	28	**47**	26	**43**	30	**50**	29	**48**	2	**3**	5	**8**

Figure 1: Weight for age in Boys (N-60) **Figure 2: Weight for age in Girls (N-60)**

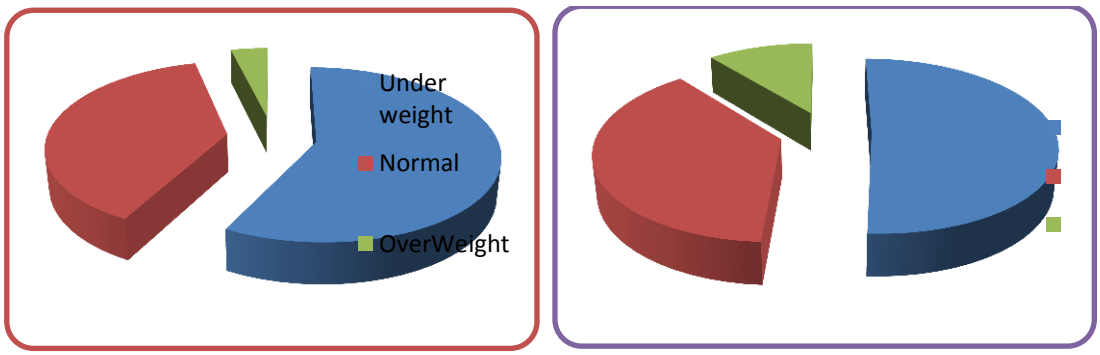

Table 2: Height for age (N-120)

S.No	Age (years)	Height								Wasting			
		Normal				Stunted				MUAC (cm)			
		Boys	%	Girls	%	Boys	%	Girls	%	Boys	%	Girls	%
1	<1	6	10	7	12	2	3	4	7	1	2	3	5
2	1.1-2	7	12	8	13	1	2	2	3	0	0	0	0
3	2.1-3	5	8	13	22	9	15	8	13	1	2	2	3
4	3.1-4	3	5	5	8	5	8	3	5	0	0	2	3
5	4.1-5	8	13	2	3	12	20	4	7	1	2	0	0
6	5.1-6	0	0	1	2	2	3	3	5	0	0	1	2
7	**Total**	29	**48**	36	**60**	31	**52**	24	**40**	3	**5**	8	**13**

Figure No. 3 Height for age in Boys (N-60)

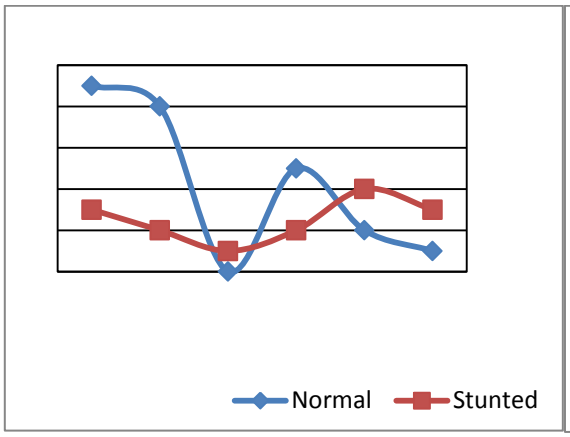

Figure No. 4 Height for age in Girls (N-60)

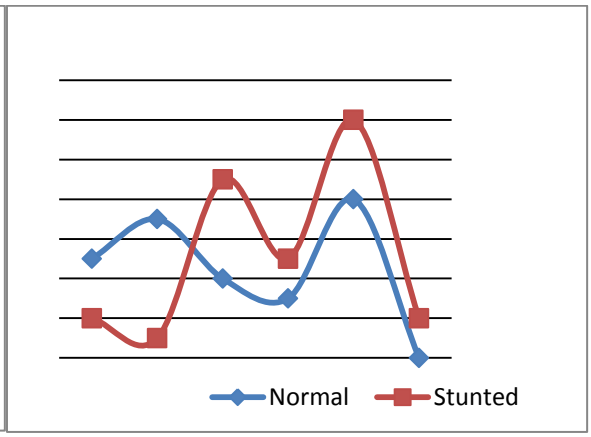

Figure No. 5 Wasting in children (N-120)

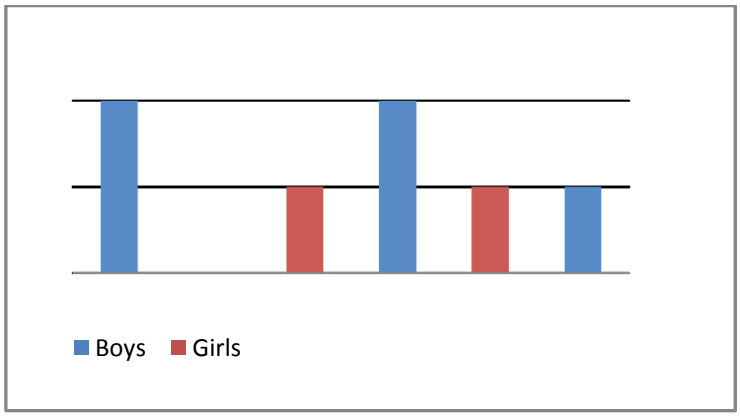

Table No. 3 Nutritional status of the children below five years (N-120)

Anthropometry	Categories	Boys	Girls	Total	%
Weight for age	Normal	28	26	54	45
	Under weight	30	29	59	49
	Over weight	2	5	7	6
Height for age	Normal	29	36	65	54
	Stunted	31	24	55	46
Low weight for Height	wasting	3	8	11	9

CONCLUSIONS

From results and discussion it can be concluded that the children under five living in Rajupalem village, Guntur district, Andhra Pradesh, India are to be given immediate intervention planning to help them gain normal weight. The slight improvement in girls regarding the Underweight sample might be due to various schemes provided for pregnant and lactating women and for below 5 year old children by Government of India which are Implemented through Department of women and child welfare.

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