

REVIEW ARTICLE

# NUTRITIONAL STATUS ASSESSMENT OF PRESCHOOL CHILDREN ATTENDING ANGANWADI CENTERS OF AHMEDABAD CITY

*Renu Singh, Jagruti Chauhan, Alka Sanghvi, Nayan Jain*  
*Food Science and Nutrition, Gujarat University, Ahmedabad*

**Abstract:**

Preschool children age group is a vulnerable population which seeks more attention and care on nutritional status. For the present study 142 children aged two year to five year were purposively selected. The data were collected by pre-prepared questionnaires. Anthropometric measurement was done by weight, height, Middle Upper Arm Circumference (MUAC), Head and chest circumference, BMI. Severity of malnutrition was assessed by Weight for age, height for age and weight for height. The study revealed 36.6 percent children were stunting and 16.9 percent were severe stunting, 23.9 percent children were underweight while 30.3 percent children were severely underweight, 5.6 percent children were fall under severe wasting category while 19 percent children were fall under wasting category. The results of the study indicates that under nutrition is still an important public health problem among children in Isanpur area of Ahmedabad and was significantly associated with gender, family income, education of mother, as well as dietary intake. Personal hygiene and sanitation, dietary intake might help to improve nutritional status of children

**Keyword:** Anthropometric measurements, chest circumference, malnutrition, wasting, dietary intake

## 1. INTRODUCTION

Malnutrition among under – five year children is an important concern for the health authorities in India. Child malnutrition is very important factor and it is significantly associated with the risk of infant and child death, with some estimates suggesting that child malnutrition is responsible for half or more of child deaths in the developing world<sup>1,2</sup>. Nutritional status of children belong to age group under five year is one of the important indicator of overall development of community and thus country. Children living in rural and tribal areas of India are at high risk of under nutrition because of incorrect nutrition, sanitation coupled with low hygienic practices and other condition.

At present in India 48% children under 5 years age are chronically malnourished and 43% are underweight<sup>3</sup>. More than half (54%) of all deaths before age five years in India are related to malnutrition. Because of its extensive prevalence in India, mild to moderate malnutrition contributes to more deaths (43%) than severe malnutrition (11%)<sup>4</sup>. Growth assessment best defines the health and nutritional status of children because disturbances in health and nutrition regardless of their etiology invariably affect child growth and hence provide an indirect measurement of the quality of life of an entire population. The study of National Nutrition Monitoring Bureau also reported high prevalence of underweight (53%) among < 5 years children in the rural areas of Gujarat during 2011-12<sup>5</sup>. Maternal factors like age, education and their nutritional status also

play a significant role in child's nutritional status, thus it is very important to encourage social status of women for the uplifting of the child nutritional status.<sup>6, 7, 8</sup>

India would be raising a generation which is debilitated and unable to contribute effectively to the productivity of the country .The Government has accorded high priority to the issue of malnutrition in the country and is implementing several schemes/programmes under different Ministries/Departments through State Governments/UT Administrations. Ministry of women and child development government of India took initiation to combat malnutrition among children through ICDS programme. The Integrated Child Development Services Programme aims at providing services to pre-school children in an integrated manner so as to ensure proper growth and development of children in rural, tribal and slum areas and it has been found that majority of the children has good nutritional status who received nutrition trough ICDS programme.<sup>9,10</sup>

## OBJECTIVE

1. To assess the health and nutritional status of ICDS beneficiaries, especially 2 - 5 years age –group children in the urban area of Ahmadabad district, Gujarat.
2. To assess the malnutrition in terms of underweight, wasting, and stunting in children aged 2 years - 5 years (60 months) of age registered in Anganwadi Centres in urban area of Ahmedabad.

## MATERIALS AND METHODS

The present study was carried over a period of four months with the aim to obtain information about “Nutritional status with special reference to malnutrition in preschool children attending Anganwadi of south Ahmedabad District, Gujarat”.

A group of 142 subjects of 2 - 5 year of age attending Anganwadi centers in urban area of south Ahmedabad city in Gujarat were selected through purposive sampling technique. The study was approved by the Institutional ethical committee and informed Consent was taken from respected authorities as well as from parents or caretakers of children. Demographic information were collected; specific information like infant and young child feeding practices, history of morbidity, Interest of children in going at Anganwadi and like or dislike the taste of food or food products provided by Anganwadi was also collected by children’s guardians. Dietary survey of the sample was conducted by using 24 hours

dietary recall method for 3 days using standardized cup sets and by food frequency method to assess their food and nutrient intake.<sup>11</sup>

Anthropometric measurement was done by weight, height, MUAC, Head and chest circumference, BMI. Severity of malnutrition was assessed by Weight for age, height for age and weight for height according to WHO growth standards<sup>12</sup>. Clinical signs were also observe and diet recall and food frequency method was taken to assess the dietary intake of children’s.

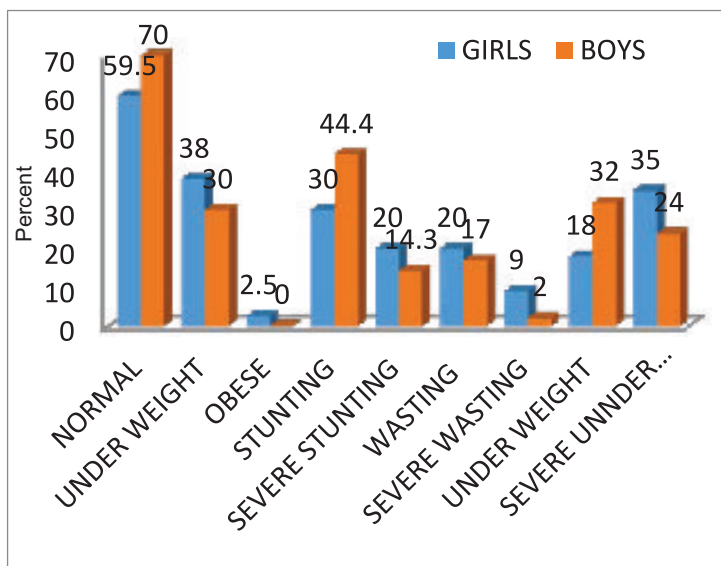
## RESULTS AND DISCUSSION

The total number of registered children (2-5 years) in the surveyed Anganwadi Centers was 142. The growth monitoring at Anganwadi Centers was done only up to 5 years of age. Thus, the actual study population comprised of 142 children of 2-5 years age group.

**TABLE: 1- Frequency Table with MUAC Distribution**

LEVEL	MODERATE (11.5 TO 12.4 CM)		AT RISK (12.5 TO 13.4 CM)		NORMAL (>13.5 CM)	
	No.	Percentage	No.	Percentage	No.	Percentage
GIRLS	0	0	9	11.4	70	88.6
BOYS	1	1.6	9	14.3	53	84.1
TOTAL	1	0.7	18	12.7	123	86.6

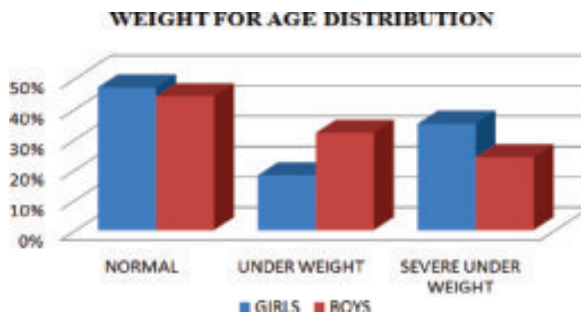
Table 1 showed that out of 142 children, 123 children (70 girls and 53 boys) were fall under normal grade (86.6 %), 18 children (9 girls and 9 boys) were at risk (12.7 percent) and 1 boy and no girl were fall under moderate grade (0.7%).



**FIGURE: 1 Nutritional Status of Children of According to Height for Age**

Figure 1 showed that malnutrition was quite prevalent in the children both towards overweight and underweight. The table showed that the nutritional status of children according to height for age showed that 30 percent girls and 44.4 percent boys were stunting, 20 percent girls and 14.3 percent boys were severe stunting, while weight for age showed that

18 percent girls and 32 percent boys were under weight. 35 percent girls and 24 percent boys were severe underweight, weight for age showed 20 percent girls and 17 percent boys were fall under wasting category and 9 percent girls and 2 percent boys were fall under severe wasting category. None of the infants exhibited the clinical signs of nutritional deficiency.



**FIGURE: 2 - Nutritional Status of Children of According to Weight for Age**

Figure 2 showed the nutritional status of children according to weight for age. It showed 47 percent girls and 44 percent boys were normal, 18 percent girls and 32 percent boys were under weight, 35 percent girls and 24 percent boys were severe underweight.

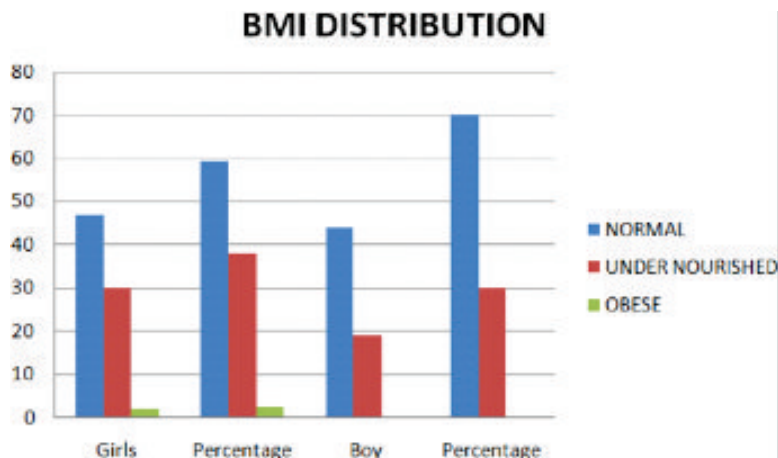
**TABLE: 2 -Nutritional Status of Children of According to Weight for Height.**

GENDER	NO.	NUTRITIONAL STATUS							
		NORMAL		WASTING		SEVEAR WASTING		RISK OF OVER WEIGHT	
		NO.	(%)	NO.	(%)	NO.	(%)	NO.	(%)
<b>GIRLS</b>	79	55	70	16	20	7	9	1	1
<b>BOYS</b>	63	51	81	11	17	1	2	0	0
<b>TOTAL</b>	142	106	74.7	27	19	8	5.6	1	0.7

Table 2 showed the nutritional status of children according to weight for height. It showed 70 percent girls and 81 percent boys were normal. 20 percent girls and 17 percent boys were wasting. 9 percent girls and 2 percent boys were severe wasting. Only one of girl was at risk of overweight, while none of the boys were fall in this category.

**TABLE: 3 - BMI distribution among girls and boys**

	NORMAL	UNDER NOURISHED	OBESE
Girls Frequency	47	30	2
Percentage	59.5	38	2.5
Boy Frequency	44	19	0
Percentage	70	30	0



**Figure: 3 - BMI Distribution of Boys and Girls**

Figure 3 and Table 3 showed the BMI distribution of girls and boys. The graph showed that 59.5 % girls and 70 % boys were have normal BMI, 2.5 % girls were

overweight while none of the respondents were obese in boys figure 3 also showed that 38 % girls and 30 % boys were undernourished .

**TABLE: 4 - Nutrient Intake of 4-5 Years Children**

NUTRIENTS	RDA	GIRLS MEAN +	(%) of RDA	BOYS	(%) of RDA
ENERGY	1350 kcal	753.62 + 50.42	55.82	775.33 + 31.14	57.43
PROTEIN	20.1 gm	16 + 1.07	80	18 + 0.65	89.5
FAT	25 gm	21.54 + 2.08	86.16	21.60 + 1.15	86.4

The information pertaining to the food consumption pattern of the children was collected by 24 hour recall method and food frequency method. While comparing the nutrient intake with RDA it was seen that subjects of 4-5 years consumed all the

nutrients in lesser amounts. Table 4 showed that total energy intake of girls was 55.8 percent; protein was 80 percent and fat was 86.16 percent. 57.4. Total energy intake of boys was 57.43 percent, protein 89.5 percent, fat 86.4 percent.

**TABLE: 5 - Food Frequency of children**

<b>FOOD ITEMS</b>	<b>Never Or Rarely</b>	<b>Once A Week</b>	<b>Several Times A week</b>	<b>Once A Day</b>	<b>Two or More Times A Day</b>
Dairy Products	14%				86%
Meat Products Meat, Fish etc. Egg	77% 74%	23% 26%			
Pulses & legumes				100%	
Cereals & cereals products				100%	
Fruit Products	20%	10%	70%		
Vegetable Products: Roots and tubules Green leafy vegetables	25%		100% 75%		
Sweets					100%
Fats (butter, oil, ghee)					100%

Table 5 showed that 14 percent of children never consumed milk and other dairy products, whereas 86 percent children consumed milk and other dairy products, two or more times in a day. 77 percent children never consumed meat or meat products while 23 percent children consumed meat or meat products once in week. 74 percent children never consumed egg and 26 percent children consumed egg once in week. 100 percent children consumed Pulses and Legumes, Cereals and Cereals products on daily basis. 20 percent children never consumed fruits while 10 percent children consumed once in week and 70 percent consumed several

times in week. 100 percent children consumed roots and tubules several times in week. 25 percent children rarely consumed green leafy vegetables while 75 percent consumed several times in week. 100 percent children consumed sweets two or more times in day. 100 percent children consumed fats two or more time. Overall study revealed that intake of cereals and legumes in moderate amount, intake of milk and dairy production in less amount, meat and egg consumed once in a week, consumption of green leafy vegetables were rare or less, fruits consumption is also less.

**TABLE: 6 - Hygiene status of Children**

Sr. No.	Questionnaire	Number and Percentage			
		DO		DON'T	
		Number	( % )	Number	(%)
1.	Do you wash your hands?				
	a. before eating /after eating	138	97	4	3
	b. after using toilet	142	100	0	0
	c. after playing	121	85	21	15
2.	Do you take bath daily?	137	96.5	5	3.5
3.	Do you brush daily?	98	69	44	31
4.	Does the child have clean hair?	126	89	16	11
5.	Has the child cut his/her nails?	112	79	30	21

Detail of Hygiene status of children is given in Table 6. About 97 percent of children were washing their hand before / after eating while 3 percent children were not. 100 percent of children are washing their hands after using toilet and there are 85 percent children wash their hands after playing while 15 percent children were not. About 96.5 percent children take daily bath while 3.5 percent children are not taking bath daily. There are 69 percent children do brush daily while 31 percent children do not take daily brush. There are 89 percent children have clean hair, 11 percent children have unclean hair. 79 percent children have cut their nails while 21 percent children haven't cut their nails.

### CONCLUSION

The above results showed the overall children's nutrient intake was poor, their energy intake was low when compared to RDA it was found that their fat and protein intake was also less. Most of them were

belong to lower income group so it may be one of the reasons of improper intake of food and malnutrition. Mothers were less educated so it also relates to poor nutrition intake of their child because of knowledge of nutrient and there RDA was not known. Nutritional level of boys was better than girls.

The results of the study indicates that under nutrition was still an important public health problem among children in Isanpur area of Ahamedabad and was significantly associated with gender, family income, education of mother, as well as dietary intake. Personal hygiene and sanitation, dietary intake might help to improve nutritional status of children.

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