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*Research Article*

# A Critical study on the nutrient level status of the Children attending ICDS Center in Kerala State (India)

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## Abstract

The research study is to assess the nutritional supplementation in term of nutritional grading and nutritional deficiency diseases among Preschoolers in Kerala state. **Method:** A cross-sectional study was carried out in among children of age group of 3-6 years in 4 districts of Kerala State was selected randomly for the present study, rural population of child beneficiaries of ICDS scheme which comprises of children upto six years of age, who were registered at AWC as Beneficiaries and served by Anganwadi centre for more than one year and corresponding those who were not registered took as Non-beneficiaries. **Results:** Malnutrition in ICDS group was found to be 50 % in male 58.0% in female, 16.3 % in males and 20.5 % in female and 44.9 % in male and 44.0% in female respectively while in Non- ICDS Utilizers stunting is 75 % in male and 69 % in female, wasting 27.0% in males and 28.0 % in females and underweight is 60.9% in males and 60.1% in female respectively, The Mean Weight of ICDS beneficiaries in general was more than that of non ICDS utilizers.

**Keywords:** *Anganwadi centre, Nutritional Status, Dietary recall method, Malnutrition.*

## Introduction

Integrated Child Development Services (ICDS) is recognized worldwide as one of the most efficient community based programmes promoting early childhood care. Regular evaluations of the programme have been conducted to make it more effective and

adequate for the beneficiaries. Malnutrition is an impairment of the health resulting from deficiency excess or imbalance of nutrients, Nutrition is of greater importance than genetic background or other biological factors with reference to the growth particularly in the rapidly growth particularly in rapidly growing period of infancy, what we are facing in India is not a protein

gap” but is in fact but is in fact a food gap,, Essentially we are dealing with a situation where quantity not the quality of the food needs to improved .The objective of the I.C.D.S scheme broadly are - (i) To improve the Nutrition and health status of children in the age group 0-6 years. (ii) To lay the foundation for proper psychological, physical and social development of the child. (iii) To reduce the incidence of mortality, morbidity, malnutrition and school dropout. (iv) To achieve effective co-ordination policy and its implementation amongst the various departments to promote child development. (v) To enhance the capability of the through proper nutrition and health education. The most crucial period in a child's growth is the first six years of life, since about 40% of physical growth and 80% of mental growth are believed to take place during these years. In this age the foundations for physical, psychological and social development are laid. It has been established that the poorly nourished child grows less rapidly both physically and mentally. If an appropriate to the weaker section of the community wastage arising from infant mortality, malnutrition can be minimized. The objective of the study was to assess the impact of nutritional supplementation in term of nutritional grading and nutritional deficiency diseases among children of age group of 3-6 years in 4 districts of Kerala State.

## Material and Method

A survey- based study was conducted in the month of February,2013 to February, 2014, in *Anganwadis* of 4 districts of Kerala State i.e., Thiruvananthapuram, Kollam, Pathanamthitta and Kottayam registered under the ICDS scheme. For the study the permission has been taken from the government official at Directorate of Social Welfare, Thiruvanthapuram (Govt. of Kerala).

**Study Area:** The present study was conducted among 3-6 years of children in four districts of Kerala State.

**Study participants:** Sample of the study divided into two groups 1. Utilizer of AWC, 2. Non utilizers of AWC, a total 350 children were studied, of which 200 of them were utilizers and 150 were non utilizer of AW services.

**Inclusion criteria:** Criteria for inclusion was children of age group 3-6 year who had registered for AW

services for last one year and those who did not registered.

**Sampling technique:** A purposive random sampling technique was used to identify the children of age 3-6 years.

**Study Tools:** Detailed questionnaire was prepared and piloted before final data collection. The questionnaire included the information on dietary intake of children, knowledge about nutrition of the respondents, anthropometric measurements like height, weight of the children. The diet pattern collected by diet survey (24 hour memory recall) and weightment of raw foods for consecutively 10 days and the both the group of was analyzed for mean intake in term of cereals intake pulses and vegetable intake milk meat fish and eggs etc.

**Data analysis:** The nutritional status of children was assessed by using weight for age and height for age index,. The nutritional grading was done as per National Standard recommended by Indian Academy of pediatrics, NCHS Standard Anthropometric z-scores based on the NCHS International Reference Standard was done through a complicated interpolation function that takes into account sex, age (measured by difference in date of birth and date of interview, both precise to day of month), height in centimeters, and weight in kilograms (precise to 100 grams). Data tables and text are mean SD  $\pm$  (Stander Deviation) Z test has been used to identify weather the difference the two means is statistically significant or not.

## Results

A total of 350 children in the age group of 3-6 years were studied, out of this 64.0 % of male. The frequency of receipts of nutritional supplementation to ICDS beneficiaries was also not uniform. In ICDS utilizers 56% children belongs to SC/ST Category, 42% belongs to backward category (OBC) and 17 % children belongs general category, whereas in non utilizers group 11% children belongs to SC/ST 56% from backward category, and 18 % from general category. The food stuff energy, calories, proteins and fats and CHO, consumed by children was significantly higher energy intake in utilizers (1800 Kcal) than non-utilizers ( $p < 0.0001$ ). Protein intake was also significantly higher in utilizers as compared to non-utilizers.

**Table 1: Nutritive intake of children attending the Anganwadi**

	Utilizers (n=200)	Non-Utilizers (n=100)	t-test and p value
Energy (K Cal)	1800 ±260	1500 ±249	15.06 <0.0001
Protein (gms)	40.00 ±5	35.00 ±10	14.00 <0.0001*
Fats (gms)	55.00 ±8	60.00 ±10	3.00 0.60
Carbohydrates (gms)	220 ±6	210 ±13	15 <0.0001*

Malnutrition in ICDS group was found to be 50 % in male 58 % in female 16.3 % in males and 20.5% in female and 44.9% in male and 44.0 % in female stunting, wasting & underweight respectively while in non ICDS utilizers stunting is 75 % in male and 69

%in female, wasting 27.0% in males and 28% in females and underweight is 60.9% in males and 60.1% in female respectively. The Mean Weight of ICDS beneficiary in general was more than that of non ICDS utilizers (Table-2).

**Table 2: Nutritional status of children attending the Anganwadi of 3-6 years by Sex**

Indicators	Sex	Stunting		Wasting		Under weight	
		No.	%	No.	%	No.	%
Utilizers	Male	50	50	16	16.3	44	44.9
	Female	49	58	18	20.5	39	44.0
Non-Utilizers	Male	68	75	25	27	55	60.9
	Female	55	69	23	28	55	60.1
P Value		0.001		0.002		<0.0001	

## Discussion

In the present study, the significantly higher energy intake was observed in utilizers (1800 kcal) than non-utilizers ( $p < 0.0001$ ). Protein intake was also significantly higher in utilizers as compared to non-utilizers. The energy intake was higher than RDA in utilizers (mean difference 115 Kcal). However, it was lower in non-utilizers (mean difference -145 Kcal). Almost, similar pattern was observed for protein and carbohydrates. Arora *et al.*, 2006 and Social Assessment of National Institute of Nutrition (1990) found that mean body weight and height in ICDS area were higher nutritional status of children were better than their non-ICDS counterparts. Similar conclusions were drawn by the previous studies of Chiani *et al.*, 1994 and Dasgupta *et al.*, 2005. It was also observed that dietary requirements to the children who attending ICDS centres were higher as compare to the other children who not attending ICDS centres.

Deutsh *et al.*, (1993) and Engle (1992), found that children under ICDS scheme were received better diet in better way. Social Assessment of National Institute of Nutrition (1990) found that overall nutritional status of children was better in ICDS centres than those children who were not attending ICDS centres. Present study too reached on the similar conclusion that ICDS children are better nutritional status as compare to their non-ICDS counterparts. In the present study, the proportions of underweight children who utilized ICDS services was 39.8% in male and 41.0% in female as compared to non-utilizer children 54.9% in male and 64.1% in female. Similarly, A study reported in Allahabad the proportions of stunting children who utilized ICDS services was 49.4% as compared to non-utilizer children (66.9%) as against 66.1% reported in a study in Allahabad (UNICEF, 1990).

Radhakrishnan *et al.*, 1998 found that 59.8 percent of the children were underweight and about 26% had very low body weight which was less than -3 S.D. of standard. The prevalence of stunted in his study was 43

percent and wasted was 35 percent. Vit. A deficiency was also observed in 2.6 percent of the subjects. Ghosh (1993) found that less than 50 percent of children below 4 years of age suffered from chronic malnutrition. Nearly 1 in 5 suffered very low malnutrition children with 2 or more siblings were more likely to be malnourished. He also found substantial effect of mother's literacy, birth order, mother's age at delivery on health status of children.

## Conclusion

The finding shows that their diet was unbalanced type mainly based on cereals their intake of Pulses Green leafy vegetables, other vegetables, roots and tubers sugar and fat were very low as compared to ICMR Standard. The ICDS Scheme may be very attractive but beneficiaries don't realize its importance. Proper and sufficient nutrition supplementation provided to the beneficiaries may help the children towards leading a nutritionally sound and health life combating malnutrition

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