

Original Research Article

A Comparative Study of the Nutritional Status among Children Attending to ICDS and Non ICDS School

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ABSTRACT

Background: Nutrition plays a key role in physical, mental and emotional development of children and much emphasis has been given to provide good nutrition to growing populations especially in the formative years of life.

Methodology: Multistage stratified sampling technique was used for selecting the sample. In second stage two Anganwadi centers were selected. In third stage 50 children were selected from nearby areas, such children were below 6 years and were not attending Anganwadi.

Results: A total of 80 cases were taken for study purpose. Majority of children (46%) were of 5 years of age followed by 26.0% of 4 years of age and minimum 8.0% were of 6 years of age similar pattern was also observed among non ICDS group majority of children (40.0%) were of 5 years of age, followed by 36.0% of 4 years of age and minimum 6.0% were of years of age. 48% of ICDS children and 54% of Non ICDS group had BMI more than 20, they were normal while 52% of ICDS and 46% of Non ICDS children had BMI less than 20 and they were underweight.

Keywords: ICDS, BMI, underweight, Anthropometric measurement.

INTRODUCTION

Nutrition plays a key role in physical, mental and emotional development of children and much emphasis has been given to provide good nutrition to growing populations especially in the formative years of life. The foundations of man's physical, mental and social development are laid in early childhood. Whatever the one gets in formative years of life contributes much for the effective adjustments adult during the later part of life. [1]

Nutritional status refers to the state of health of an individual as it is affected by the intake and utilization of nutrients. Once the nutritional status is poor one becomes vulnerable to ill health and he loses resistance and diseases fighting capacity.

There are four major methods i.e. anthropometric measurements, clinical examination, biochemical assessment and dietary survey which are used to assess nutritional status of individuals and population groups. [2]

Assessment of growth and development is an important part of the clinical examination. The common failure to measure weight and more often height hampers nutritional assessment of growth and change. Anthropometric data are most vulnerable when accurately measured and recorded over a period of time. Measurements such as height, weight, head circumference, and skin fold thickness reflect present nutritional status. Clinical examination, therefore, is one of the simplest methods to assess nutritional status.

It involves looking for changes in the body, which are indicative of a particular deficiency. [3]

According to the Census of India (2001), the child population (0-6 years) was 15.9% of the total population. The prevalence of underweight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa. The 3rd National Family Health Survey findings showed that 45% of less than 3 year old children were malnourished. If this continues, India would be raising a generation which is debilitated and unable to contribute effectively to the productivity of the country. [4]

To tackle the problem of malnutrition and the ill health of mothers and children, the Government of India has launched the Integrated Child Development Services (ICDS) program. It is the world's largest early child development program. It was initiated in India in 1975 with the objective of improving the nutritional status of pre-school children in addition to other services. Malnutrition is "the syndrome that results from the interaction between poor diets and disease and leads to most of the anthropometric deficits observed among children in the world's less developed countries" (WHO 1995). [5]

The child population in India is 39% of the total population and preschool children constitute an important vital segment of this population. The preschool age represent marked nutritional and emotional change for acquiring communicable disease and involvement in accident. This age group has been described as a formation age, child is soft like plastic, who can be moulded in a desirable fashion and the defects of the development and growth deficiency can be napped in the bud and possible correction done. The whole personality of the child has to be developed. It is preschool period of life where the seeds of future-disabilities like mental illness and social adjustment are soon the preschool age is therefore a very crucial phase in child as

life, when they need special care and medical attention. [6]

Today, the need for upgrading health and nutritional status of children, as a essential prerequisite to the development of a nation health society, is universally recognized there are these preschool children whose nutritional status and educational attainments determine the quality of over nation. It is therefore of primary interest to take care of their health and nutritional status.

METHODOLOGY

Multistage stratified sampling technique was used for selecting the sample. [7] Rural block of Mainpuri district was selected purposively in the first stage due to convenience of investigator.

1. Mainpuri block is divided into five zones, i.e. East, West North, South and centre zone.
2. In second stage two Anganwadi centers were selected from central zone as per nature of study requires.
 - a. Sultanganj and Manpurhari
 - b. 50 children were selected [25 year each centre] from the anganwadi centers randomly.
3. In third stage 50 children were selected from nearby areas, such children were below 6 years and were not attending Anganwadi. Thus preschool children were the unit of information for the present study.

Sample Characteristics: the characteristics of the sample in present study are as follows-

1. Selected children were basically of below poverty line families most of their parents had annual income below Rs. 20000.
2. All the children were in age group of 3-6 years.
3. Majority of parents of children were less educated.
4. Majority in both areas belonged to nuclear family.
5. Tools and techniques used: the investigator used the interview

schedule for the present study. Schedule consisted of following section.

- a. General information
 - b. Anthropometric measurement
 - c. Food habits
 - d. Clinical survey
 - e. Dietary survey
- a) **General information:** Thus part included information about child his name, address, sex, whether or not attending anganwadi, age order of birth religion [caste, food habit, type of family, size of family and number of children in the family [6-12 years].

This part also included information regarding parent's name, age, education, occupation, income and marital status.

- b) **Anthropometric measurements:-** According the Jelliffe [1966] [8] nutritional anthropometry is concerned with the measurements of variations in physical dimensions and gross composition of human body as different age levels and degrees of nutrition.

Height:- Is a liner measurement made up of four counter apartments legs, pelvic, spine, while measuring height. At first subject was asked to remove her sleepers stand on even floor with centre of her feet parallel and heels buttocks shoulders and back of her head touching the walls. Head was to be held comfortable erect arms were hanged loosely by the side. Measuring taps was held parallel to subjects body and height was measured in cm. Height was read off to nearest 0.5 cm.

Weight:- Weight is usually regarded as most meaningful method because weight defaults are directly related to nutritional deficiency weight was measured by using a child weighting balance supplied by UNICEF weight of child with minimum clothing without shoes was recorded with an accuracy up to 100 gm. Nutritional status of a child may judged either [a] on estimate of child's general nutritive intake on specific evidence of nutritional deficiency symptoms.

c) **Food habits:** This included information regarding the child being vegetarian or non-vegetarian number of times the child eats foods his regularity in between: eating outside the house and number of times of his eating outside.

d) **Clinical surgery:** Estimate of a child's nutritional status is usually based meanly on the overall appearance and bearing of the child. A well-nourished happily adjusted child has the general appearance of vitality and wellbeing as their bodies are functioning normally and efficiently. Survey of hair, eyes, lips, tongue, teeth, gums, nails, skin, muscular system and skeletal system.

e) **Dietary survey:** in order to assess the nutritional status dietary intake must be calculated oral question are or interview is the most commonly used method of diet survey depending upon the information was collected regarding types and qualities of foods consumed. Approximate amount were collected through this information.

Statistical Analysis:- The collected data were coded, tabulated and analysed using various statistical techniques. The statistical tests were used to know the relationship between dependent and independent variables among the various group of study.

RESULTS

The present study was conducted by the department of paediatrics, Major S.D. Singh, Medical College, Farrukhabad for a period of one year. Ethical clearance was taken from the institutional Ethical committee. A total of 80 cases were taken for study purpose.

Table: 1 Distribution of children according to sex in ICDS and Non-ICDS groups.

Sex	ICDS		Non- ICDS	
	No.	%	No.	%
Male	25	50.0	25	50.0
Female	25	50.0	25	50.0
Total	50	100.0	50	100.0

The above table reveals the distribution of the children according to sex in ICDS and Non ICDS groups. 50% each child of ICDS and Non ICDS were male,

while 50% each child of ICDS and Non ICDS were female.

Table: 2 Distribution of children according to age in ICDS and Non-ICDS groups.

Age in years	ICDS		Non- ICDS	
	No.	%	No.	%
3	10	20.0	9	18.0
4	13	26.0	18	36.0
5	23	46.0	20	40.0
6	4	8.0	3	6.0
Total	50	100.0	50	100.0

The above table reveals the distribution of children according to age in ICDS and non ICDS group. Among the ICDS group, Majority of children (46%) were of 5 years of age followed by 26.0% of 4 years of age and minimum 8.0% were of 6 years of age similar pattern was also observed among non ICDS group majority

of children (40.0%) were of 5 years of age, followed by 36.0% of 4 years of age and minimum 6.0% were of years of age.

Table: 3 Distribution of children according to Body Mass index (BMI) in ICDS and Non ICDS groups.

BMI	ICDS		Non- ICDS	
	No.	%	No.	%
>20	24	48.0	27	54.0
<20	26	52.0	23	46.0
Total	50	100.0	50	100.0

Above table reveals distribution of children according to Body Mass Index (BMI) in ICDS and Non ICDS groups. 48% of ICDS children and 54% of Non ICDS group had BMI more than 20, they were normal while 52% of ICDS and 46% of Non ICDS children had BMI less than 20 and they were underweight.

Table: 4 Comparison of mean nutrient intake of children in ICDS and Non ICDS groups.

Nutrient intake	Unit	Children				Statistical Values	
		ICDS (n=50)		Non ICDS (n=50)		t	P
		Mean	SD	Mean	SD		
Calorie	kcal	1716.22	446.26	1073.44	282.80	8.335	<0.05
Protein	Gm	37.06	4.08	25.14	3.18	16.294	<0.05
Calcium	Gm	446.72	196.53	342.50	145.04	3.017	<0.05
Vitamin A	Mg	1889.60	316.44	1113.55	69.13	16.942	<0.05
Vitamin B1	Mg	1.50	0.38	0.94	0.33	7.868	<0.05
Vitamin C	Mg	38.89	4.90	22.39	2.51	21.192	<0.05
Iron	Mg	17.73	6.97	10.41	4.26	6.336	<0.05
Fat	Gm	31.89	16.33	20.66	10.39	4.103	<0.05
Riboflavin	Mg	0.74	0.29	0.45	0.14	6.368	<0.05
Niacin	Mg	13.12	3.20	8.09	2.82	8.339	<0.05

Above table reveals the comparison of mean nutrient intake of children in ICDS and Non ICDS groups. The mean intake of all nutrients calorie, protein, calcium, vitamin A, vitamin C, iron, fat, riboflavin and niacin were found to be more among the children in ICDS group as compared to children in Non ICDS group. Statistically significant differences regarding all the nutrient intake were observed between the children of ICDS and Non ICDS group ($p < 0.05$)

DISCUSSION

Brown et al [2009] [9] in U.S.A. boys intake percentage of charge and all nutrient except ascorbic acid. The intake of Ca& energy by the girls were at the lower limit the intake of iron was low for all.

Kumari P.S. [2003]. [10] The development of the nation lies in the hands of the children who are the future citizens. Childhood malnutrition among urban poor was similar to or higher than rural poor. Here a comparative study of health profile of children 0-6 years of age residing in the urban slums covered by ICDS and not covered by ICDS in Hyderabad A.P. was undertaken. In their study nutritional status (38.83@ normal), Immunization status (Fully immunized 59.19%) and health status among the ICDS beneficiaries was better when compared to Non ICDS, however the overall health of all the children in both ICDS slums and non ICDS slums was poor.

According to Nidhivaid and Sumativaid [2005] [11] it was found that children who attended anganwadi centres had good health of appearance as compared

to their counterparts. It was also observed that ICDS children had good dietary intake as compared to the children who did not attend ICDS centres.

B. Najineem [2004] [12] result showed that cognitive abilities of pre-schoolers who availed the ICDS package services was significantly better than that of non-ICDS group.

Singhal [2001] [13] reported that intake of nutrient was better among ICDS children than Non ICDS children which corresponds to over study.

Raman et. al. [2002] [14] conducted a study on 150 preschool children aged 1-6 years and found that iron deficiency by low serum ferritin level was in 16-20%.

According to Baiet. al. [2006] [15] founding vitA iron & riboflavin deficiency are higher among children indicating prevalence of malnutrition. All this could be due to poor socio economic status of the people of the area.

CONCLUSION

On the basis of finding it could be concluded that majority of the respondent were in the age group of 4-6 years, where from Hindus belong to nuclear family. The nutritional study of a majority of the child benefices in to anthropometry measurement dietary intake was not normal as were expected of under the ICDS.

Therefore, there is need to identify the weakness & nature thereof in the system and in the client as well. The personnel engaged in the implementation of the ICDS showed consider the effect of variable party of protein intake, calorie intake, and family education in strengthening the programmes of activities.

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