Pragya Kumari
Research Scholar, Department of Home Science, B.R.A. Bihar University, Muzaffarpur, Bihar, India

An assessment of nutritional status of pre-school children enrolled under Anganwadi centre: An analytical approach and report

Pragya Kumari

DOI: https://doi.org/10.22271/23957476.2020.v6.i3d.1036

Abstract
Every child has the right to get affection, love and understanding, adequate nutrition and medical care free education and full opportunity for play and recreation, as the constitution of India upholds these rights and provides guarantee to protect the children from any sort of exploitation. The government of India launched the scheme of "Integrated Child Development Services" popularly knows as ICDS on October 2, 1975 with the assistances of UNICEF to tackle the problem in an integrated manner and to meet the challenge. The grass level of ICDS is Anganwadi and centre, is run by the Anganwadi workers. An angnawadi worker is the main functional unit and head of the center. Food in adequate quantity and quality is probably the most important factor affecting health and nutritional status. Due to the insufficient supply of diet majority of infants are suffering from protein energy and, thus have been associated with malnutrition. A statistical approach has been made to assess the nutritional status of pre-school children with the age group of 0-6 years of urban slum and rural of Samastipur district under ICDS scheme.

Keywords: Statistical approach, Anganwadi, nutritional status, anthropometric measurement, ICDS

Introduction

In India the huge percentage of infants and children are suffering for the most common diseases called "Protein Energy Malnutrition or PEM and day to day its percentage is increasing. Since the children are the future and supreme asset of the nation, a careful and well-planned attention must be give for their nurtures and growth.

The prevalence rate of severe degree of Protein Energy Malnutrition in our Community is 3-5%. For every 3-5 cases of severe Protein Energy Malnutrition, one can detect 80-90 cased of mild to moderate protein Energy Malnutrition and about 10% of well-nourished children. A systematic study of the habitual diets of these children indicated that the concentration of protein in their was adequate but they were suffering from enery of food inadequately since they were not eating enough of their habitual diet. The average energy deficit was found to 300 Kcal/day.

Madhavan *et al.* (1998) carried out a nutritional survey among preschool children of rural area covering 26 villages around Hyderabad city. A total of 1809 chikdren (933 males and 876 females) between the ages of 1-5 years were examined for presence of nutritional deficiency sing.i.e vitamin –A and Vitamin B complex increases with increase in age. In case of protein calorie malnutrition, the maximum prevalence was in the age group of 1-2, 2-2 1/2 and 3-3 1/2 years. The Vitamin-A deficiency sign showed a slight decreasing trend in the prevalence with better growth. In the same year, they further reported that the nutritional status of beneficiaries was assessed through anthropometric measurement, clinical examination, and biochemical evaluation and the nutrient intake was determined by food weightment method.

Nutritional status of the community assessed by jellify (1966) suggests that the anthropometric data is most important criteria for judging the nutrition status in infancy and childhood. The triceps skin fold, weight and height measurements evaluate the adequacy of local fat reserves. While it is an easier to measure mid arm circumference which assess the total growth of

Corresponding Author:
Pragya Kumari
Research Scholar, Department of Home Science, B.R.A. Bihar University, Muzaffarpur, Bihar, India

subcutaneous fat and muscles. Kumar *et al.* (2005) studied the clinical signs of nutritional deficiency among the children and found that it was detected among 31.5% children. The most common being Anemia, followed by PEM, avitaminosis, Vitamin-B deficiency. Anemia, It was also reported that the prevalence of malnutrition showed a significant increase with increase in the age of children and was maximum in the children between 3-4 years. The result showed that about 56% children were normal, 45% suffered from protein-energy malnutrition in grade I, II & III and none were in protein energy malnutrition in Grade-IV.

Collis (2006) found that for an up-to-date assessment of Nutritional situation, biochemical studies are accurate as they Provides information on nutrient intake and adqequacy at the time of the survey. However, they are expensive and if the results of the clinical surveys indicate severe and widespread anaemia, it may be cheaper and more sensible to implement. The blood and albumen level could indicate the nutritional status of the population.

Methodology
The methodology adopted in conductiong the study is presented under the following heading. The list of mothers having malnourished infants (0-6 years) was prepared with the help of hospital and chinical records. Thus, 150 mothers were selected from the list by random sampling methods, which constituted the sample respondents for the present study.

Selection of the Area
The study was conducted in the four C.D. blocks-Kalyanpur, Ujjarpur, Pusa, and sarairanjan under samastipur District, where ICDS project was in operation both in rural and urban slum area.

Selection of Samples
A sample of mothers of malnourished infants was considered for the study. The sampling was related to the selection of child-beneficiaries from the selected Anganwari Centers. In all 100 (74 Urban and 36 rural) child beneficiaries finally constituted the sample of the study.

Variables and Their Measurement
The study as conceptualized was three sets of variables categorized as independent, intervening and dependent variables.

The independent variables includes the following variables like:- Sex, Age, Family size, Birth orders, caste, family income, family educational levels, Mother educational status, Nutritional knowledge of mother, etc.

The intervening variables include the following variables like Dietary intake, Adult consumption unit, RDA (Recommended Dietary Allowance) and Immunization status.

Collection of Date
Comprehensive information about the food expenditure and consumption pattern from the child family was collected the accepted procedure of jellife (1966) on Pre-testing and measurements of following:-
a) Head
b) Weight
c) Head Circumference
d) Chest Circumference
e) Mid upper arm Circumference

Tools for the Analysis of Date
Statistical methods were used for study according to the data and types information needed as follows.
a) Mean
b) Percentage
c) Chi-square test
d) Path-Analysis
e) Correlation Co-efficent
f) Regression Analysis

Result and Discussion
Assessment of nutritional status of pre-school children under Anganwadi centre

Anthropometric Measurement
Anthropometric data serve as important criteria for judging nutritional status in childhood. The height, weight and triceps skin-fold judging nutritional status in childhood. The height, weight and triceps skin-fold measurement were recorded and children were broadly classified in to groups as shown in the Table No.1

Table 1: Distribution of Children According to the Anthropometric Measurements

	Urban		Rural	
	Frequency	Percent	Frequency	Percent
Normal	13	16.4	11	31
Grade-I(Green)	19	26.0	9	25.0
Grade - II (Yellow)	29	39.8	10	27.0
Grade - III & IV		17.8		
Total	74	100.00	36	100.00

$$X^2 = 3.26^{NS} \quad df = 3$$

The Table indicates that the maximum of 39.8% urban children are in Grade-II category of Nutritional status whereas it is only 27.7% in case of rural chldren. So far as the anthropometric measure are concerned, 31% of children are in normal state of the nutritional status at the rural centre. The table also gives an idea that about 17.8% children at urban and 17% children in rural area were under the severe degree of malnutrition and hence require special attention by the health at the centers.
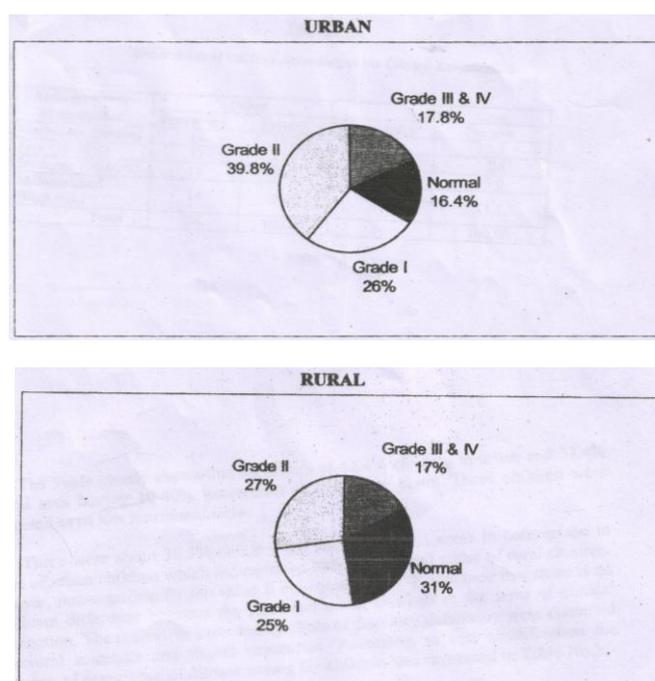

Fig 1: Nutritional Status of Pre-School Children

Calculated chi-square value is non-signigicant which suggests that urban and rural setting of ICDS do not differ significantly in term of anthropometric measurment.

Clinical Examination
Clinical examination has been regarded as the most important approach in the Nutritional survey. It involves the observation of most common tissue like eyes, skin, hair, mouth, teeth, tongue, gum etc. The results of clinical examination have been summed up in Table No. 2

Table 2: Distribution of children According to the clinical Examination

Anthropometric Measurement	Urban		Rural	
	Frequency	Percent	Frequency	Percent
Normal no disease)	14	19.2	11	30.5
Low (10-40%)	32	42.4	12	33.4
Mederate (40-60%)	14	19.2	9	25.0
Malnourished (High risk)	14	19.2	4	11.1
Total	74	100.00	36	100.00
$X^2 = 3.208$ NS df = 3				

The Table clearly shows that maximum of 42.4% children in urban and 33.4% in rural area having 10-40% occurrence of deficiency signs. These children were designated as of low nutritional status.

There were about 30.5% children are normal in rural areas in comparison to 19.2% of urban children which indicates the better nutritional status of rural children. However, non-significantly the value if chi-square leads to conclude that there is no significant difference between the tural and urban children in the term of clinical examination. The numerous signs and symbols of directory deficiency were classified by several scientists and expert committee. According to that classification the frequency of occurrence of disease among the children was expressed in Table No.3

Table 3: Percentage prevalence of nutritional deficiency signs among children

Nutrition Deficiency Signs	Urban		Rural	
	Frequency	Percent	Frequency	Percent
(a) Anaemia	50	68.5	23	63.8
(a) PEM (Protein Energy Malnutrition)	45	61.1	20	55.5
(a) Vitamin A deficiency	21	28.7	8	22.2
(a) Vitamin B deficiency	30	41.1	19	38.8
(a) Vitamin C deficiency	14	19.1	3	8.8
(a) Mineral deficiency	13	17.8	6	16.6

The table shows that a maximum of 61.1% urban children and 55.5% among rural children suffer from the mild as severe degree of protein and energy deficiency. The protein energy malnutrition can be observed by the examination of the hair designation, edemas and irritability etc. The vitamin-B deficiency which includes the angular steatites, celosias etc. Again Bigot' and Night blindness due to Vitamin-A
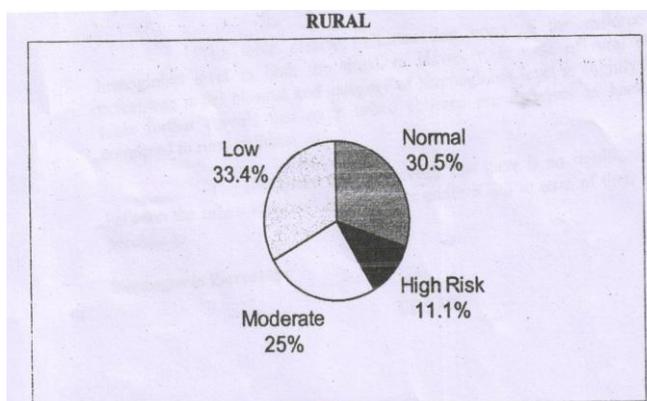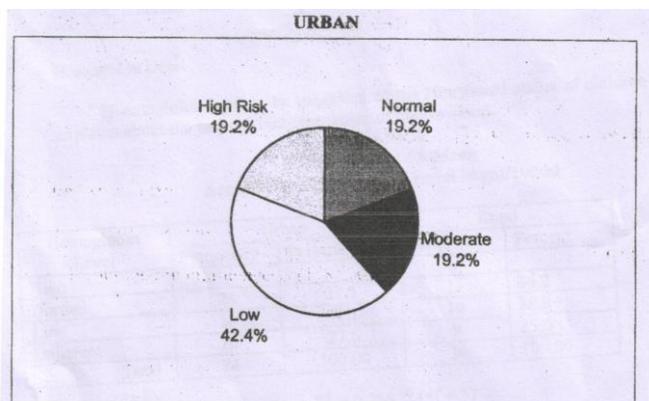
Clinical Examination

Fig 2: Nutritional Status of Pre-School Children

Deficiency occurs among 28.7% children in urban and 22.2% among rural children Vitamin-C deficiency and mineral deficiency was found among very small group of children. It is also clear from the table about 66.9% children were anaemic.

Hemoglobin Level
Haemoglobin level is an important of the Nutritional status of children which explains about the hemoglobin percentage of child's blood.

Table 4: Distribution of children According to hemoglobin level in gm/100ml

Hemoglobin Level	Urban		Rural	
	Frequency	Percent	Frequency	Percent
High	-	-	-	-
Normal	24	31.3	13	36.2
Low	30	41.1	14	38.8
Deficient	20	27.6	9	25.0
Total	74	100.00	36	100.00

$$X^2 = 0.236^{NS} (df = 3)$$

The table clearly indicates that none of the children has high hemoglobin level in both the situation. However, in case of rural children the percentage is the normal and category of hemoglobin lever is slightly higher. The table further reveals that more urban children are deficient in hemoglobin as compared to rural children.

The chi-square analysis reveals that there is no significant differences between the urban and rural beneficiaries under ICDS in term of their hemoglobin percentage.
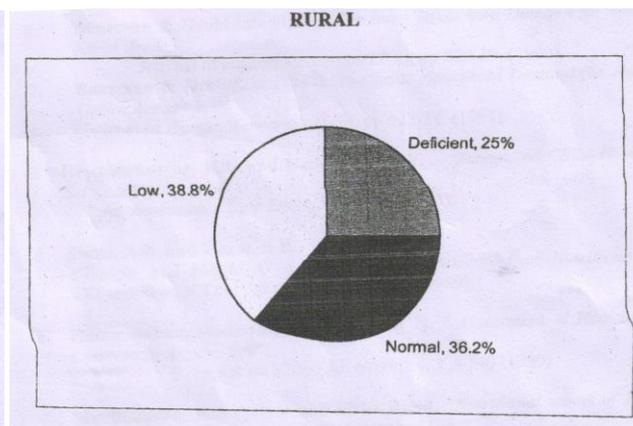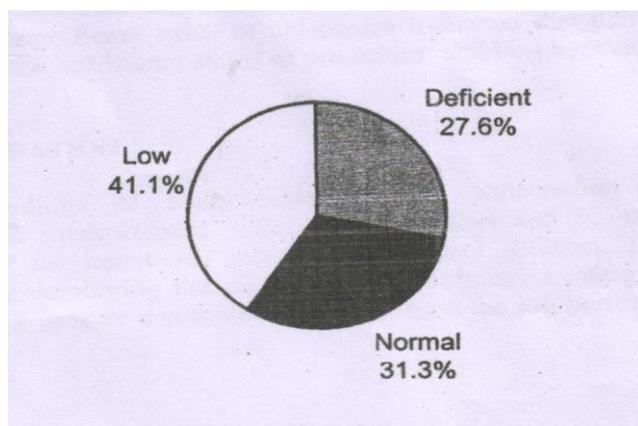
Haemoglobin percentage
Urban

Fig 3: Nutritional Status of Pre-School Children

The nutritional status measured in the term of anthropometric measurement indicates that a maximum of 39.8 of urban children were in grade – II category of Nutritional Status, which was only 27.7% in case of rural children. A maximums of 30.6% children were in the normal status of rural centers as compared the 16.4% of urban children.

The clinical assessment had occurrence of 10 to 4% deficiency symptoms indicating their low nutritional status. Similarly none of the child beneficiaries in both the situation had high hemoglobin level. The study indicate that the rural children had higher level of hemoglobin than the urban counterpart. However, No significant value of chi- square indicated that there was so significant differences in the nutritional status of pre-school children between the urban and rural situation.

Recommendation
The findings of study requires more information on observation of anthropometric measurement. Clinical examination and bio-chemical test for the assessment of the nutritional status of pre-school children. The research may be undertaken by employing the methods like beneficiaries rating, record performance and pear rating to have a composite picture about the job performance of Anganwari workers.

References
1. Benrman, Deoldikav. The Intra Household Demand for Nutrient in Rural Areas 1990.
2. Journal of Human Resources 1990;25(2):829-39.
3. Benrman, Deoldikav. The Intra Household Demand for Nutrient in Urban Areas 1991.
4. Journal of Human Resources 1991;26(3):623-34.
5. Krishnamurthy KG, Nandkarni MV. "Integrated Child Development Services" An Assessment New Delhi, UNICEF 1983.
6. Desai AB, Des ai BR. "Weight and Height as a parameter in Assessment of Nutritional Status" Research on ICDS: An over view 1989;1:35.
7. Kamalnathan, Godawari, Barodhaj G. "Assessment of Health Status of children in Anganwadi" Research on ICDS: An overview 1989;1:140.
8. Murlidharan, Rajlakshmi, Kaur Baljit, "Nutritional status of pre-school children in the related factory of Hyderabad City: NIN Annual Reports 1979;2:151.
9. Bhat CM, Dahiya Saroj. "Nutritional status of Pre- school children in Gangowa village of Hisa", Indian Journal of Nutrition and Dietetics 1984;22(7):27.