

ASSESSMENT OF NUTRITIONAL STATUS OF PRE-SCHOOL CHILDREN OF ANGANWADI OF LABOUR COLONY, H.A.U

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Abstract: Integrated Child Development Scheme (ICDS) is one of the world's largest and most unique programmes for early childhood care and development in India. Malnutrition is a public health problem of significant importance in India. This study attempts to compare the nutritional and health status as assessed by weight for age, height for age with the standards for growth and to explore the implications of differences in under nutrition rates in the 6 months- 6 year of age group as assessed by these three indices. In this study, 60 children aged 6 month to 6 years were randomly selected. The eating habits of children were obtained through a questionnaire. The height and weight of children were measured and anthropometric indices of height/age and weight/age were used to estimate children's nutritional status. The stepwise analysis of two variables height for age and weight for age was applicable on the basis of McLaren's and Gomez' classification. On the basis of Gomez classification 90% children in the age group of 6 month- 1.5 year were normal and 77.14% of children were moderately malnourished in the age group of 3 - 6 year. On McLaren's classification of height for age 80% of children were normal in the age group 6 month -1.5 year and 67.74% of 3-6 years age. Thus it can be concluded that as the age increases the prevalence of malnutrition is also more.

Keywords: Preschool children, nutritional status, stunting, wasting, labour colony.

Introduction

Good nutrition helps to improve child survival, to promote healthy growth and development, to contribute to better cognitive and economic development. It also reduces morbidity and mortality rate, and the risk of chronic diseases such as cardiovascular disease, diabetes, kwashiorkor, marasmus, hypertension, even in adulthood [3]. Although food is essential, it has often been lacking, in the qualitative and quantitative point of view resulting in the occurrence of malnutrition. It generally affects everyone in a community, but infants and children are the most vulnerable because of their high nutritional needs for growth and development. Child malnutrition is the single biggest contributor to under-five mortality due to greater susceptibility to infections and slow recovery from illness. Misconception prevalent in the present time is the unavailability of the enough food. Between 6-18 months, food

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availability within the household is usually not the critical factor causing malnutrition. It is more often inadequate knowledge about feeding practice that are in the best interest of the child [10]. Scientific evidence has shown that beyond the age of 2-3 years, the effects of chronic malnutrition are irreversible. The child malnutrition in India is mostly the result of the high levels of exposure to infections and the inappropriate infant and young child feeding and caring practices. As per the Third National Family Health Survey [9] almost half of the children who are under five years of age (48%) are stunted and 43 per cent are underweight. This led to the birth of the Integrated Child Development Services (ICDS) in 1975, which is no doubt recognized as the world's largest early child health programme: which approaches child health holistically and comprises health, nutrition and education component for pregnant women, lactating mother and children less than 6 years of age [11]. A major focus of the ICDS is the distribution of a food supplement, often khichdi (a rice and lentil mixture), to these children. This supplement provision aims to improve the health and nutritional status of the children while relieving short-term hunger. Each 200-g serving of khichdi provides sufficient macronutrients (300 kcal and 8 g protein per serving); however, it lacks adequate iron and vitamin A [13]. The child mortality estimate report 2012 released by the United Nations Children's Emergency Fund (UNICEF) shows India in a poor light. It let the whole world by recording deaths of 16.55 lakh children under the age of 5 in 2011. The objectives of the present study is to assess the impact of nutritional supplementation in terms of nutritional grading and health status among children of age group of 6 month - 6 years in labour colony of CCSHAU, Hisar.

Materials and methods

A survey-based study was conducted in the month of October, 2015, among 2 Anganwadis in 2 ward of labour colony CCSHAU, Hisar, registered under the ICDS scheme. The research approach adopted for the study was survey through self structured questionnaire. The study was, among the 60 pre-school children of the age 6 month – 6 years. The samples were selected by simple random sampling technique from 2 selected anganwadi centers of labour colony. Anthropometric measurements (height and weight) were used for assessing nutritional status of the children. Children were examined in the Anganwadis where their heights and weights were taken. A complete assessment of nutritional status includes the collection of anthropometric data. A standard measuring tape was used to measure height. Children were weighed using a standardized Salter's scale to the nearest 100 grams when attending an Anganwadi. Weight for age and height for age were calculated and children

were classified into different grades of malnutrition according to Gomez's [5] and McLaren's classification [8].

Classification by Gomez et al	Classification by McLaren's
Normal >90% of standard weight for age	Normal 93-105 % of height for age
Grade I 89%-75% of standard weight for age	Short- 80% - 95% of height for age
Grade II 74%-60%of standard weight for age	Dwarf- > 80%
Grade III <60% of standard weight for age	

The tools used for this study were

Collection of data- A self- structured questionnaire was developed and finally data was collected personally and individually from each of the 60 pre-schoolar and anganwadi workers.

Analytical procedure and interpretation of data- After enumeration, the filled data in questionnaire were assigned code for subsequent detailed analysis. Master table and tally sheets and the frequency tables in respect of different variables were prepared. Based on the finding of the study and conclusions drawn on the basis of statistical analysis results were interpreted and recorded in the report, keeping in view the objectives of the study.

Limitation of Study - Only weight for age and height for age criteria was used to estimate the nutritional status of children. ICDS children (6 month-6 years) who were registered only with the anganwadi centre were selected as the study groups.

Result and discussion

The Pre-school childrens covered in the study ranges from 6 month – 1.5 year, 1.5 - 3 year and 3 – 6 year which is an official classification of beneficiaries of children group by the ICDS. The total contribution of nutrient from food provided by anganwadi was 22.14 per cent of energy, 41.97 per cent of carbohydrate, 56.95 per cent of protein and 51.89 per cent of fat of the normal requirement in the age group of 1.5 year – 3 year, while it was 65.87 per cent of energy of, 18.85 per cent of carbohydrate, 43.24 per cent of protein and 53.24 per cent of fat in the age group of 3- 6 year (Table 1). Some of the nutrients were higher in the age group of 1.5- 3 year than 3-6 year age group because more of the nutritional requirement during this stage but amount of food provided was higher in the age group of 1.5 month – 3 year. The data also shows that no fat is being provided to the 6 month – 1.5 year children because they were provided with weaning like mixture called as 'panjiri'. The measurement of

anthropometric data on weight for age (wasting) reveals that 90 per cent of children in the age group of 6 month- 1.5 year were normal whereas 10 per cent were malnourished however 57.89 per cent of children in the age group of 1.5- 3 year were Grade II class malnourished which is quite lower than that of 3- 6 year age group where 77.41 per cent of children were under class II malnourished (Fig1). There was a gradual increase in the prevalence of under-nutrition as the age increases as can be observed from the figure that 6.45 per cent of children in the age group of 3- 6 year were Grade III malnourished. However 90 per cent of children were normal in the age group of 6 month- 1.5 year which gradually decreased (36.84 %) in the age group of 1.5-3 year. The findings of the study are similar with the findings of Bhalani et al [1] where more than 60 per cent of infants were normal when compared to any other age group of children. Goel [4] conducted a study in Rohtak, a city in Haryana on 540 children aged 1-6 years. The study found that 57.4 per cent children were malnourished. Out of which Grade I were 107(19.8per cent), Grade II were 137(25.4per cent), Grade III were 45 (8.3per cent) and Grade IV were 21 (3.9per cent).

As per McLaren's classes of height for weight (stunting), Children less than 1.5 year were 80 per cent normal while the same was 67.74 per cent in the age group of 3- 6 year and 84.21 per cent in the age group of 1.5 month- 3 year. The data related to shortness (fig 2) shows that 20 per cent in the age group of 6 month- 1.5 year, 15.16 per cent in the age group of 1.5- 3 year and 25.80 per cent in the age group of 3- 6 year were short , however only 6.4 per cent in the age group of 3- 6 year were dwarf. The result findings are similar to Brahmam et al [2] where about 40per cent of <5 year children were stunted (<Median -2SD). The prevalence of severe stunting (<Median - 3SD) was about 11 per cent, while that of moderate stunting (-3SD to - 2SD) was about 29 per cent. The prevalence of stunting increased with increase in age, from about 21per cent in the age group of 6-11 months, through 49 per cent in 24-35 months and decreased to 38per cent in 48-59 months age group. Saiprasad *et al* [10] noticed that as the age of the child increased the nutritional status of the child goes on deteriorating, with less than 1 year age group was the least sufferer from malnutrition 22.2 per cent. As child crosses 1 year age, malnutrition rate rises sharply to 61.6per cent (114 out of 185). Similar was the picture shown by the association between height for age of the child where 11.1 per cent of the children were suffering from chronic malnutrition (i.e. stunting in age group of 1 year) whereas the rate of stunting rises steeply to 59.4 per cent by 2 years of age (i.e.110 out of 185). In 2005-2006 NFHS-III [9] and UNICEF [12], it was found that 46 per cent of preschool children were suffering from moderate and severe grades of protein calorie

malnutrition. In 2008, S. Malik *et al* [7] noticed that 51 per cent of children were malnourished. Out of these, 29 per cent were suffering from grade-I, 14 per cent from grade-II and 6 per cent from grade-III and 2 per cent from grade-IV malnutrition.

Conclusions and recommendations

Malnutrition rate was drastically increased in the age group of 3-6 years (77.14%). Thus in order to reduce the problem of malnutrition, the amount of food should be increased in age group more than 1.5. Appropriate dietary modifications have to be done to ensure the increased calorie and protein intake as per the recommendations. Uses of non expensive, culturally acceptable nutritious recipes with the inclusion of green leafy vegetables and milk have to be promoted and demonstrated as these food contributes to the calorie. The present study shows that there are still many children who are undernourished and severely malnourished in the anganwadi, even after 40 years of ICDS services. There is need to use WHO standards at the grass route levels to correctly identify the burden of under nutrition.

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Table 1: Percentage of nutrient from food provided by Anganwadi (6 days) for different age group

Nutrient	6 month-1.5 year			1.5- 3 year			3-6 year		
	Required	obtained	%	Required	Obtained	%	Required	Obtained	%
Energy (Kcal)	5056.8	2292	45.32	7440	1647.90	22.14	10140	6679.32	65.87
Carbohydrate(g)	3539.76	1604.4	45.32	5208	2186.10	41.97	7098	1338.36	18.85
Protein (g)	85.14	70.64	82.96	132	75.18	56.95	180	77.84	43.24
Fat(g)	-	1.83	-	150	77.84	51.89	150	79.86	53.24

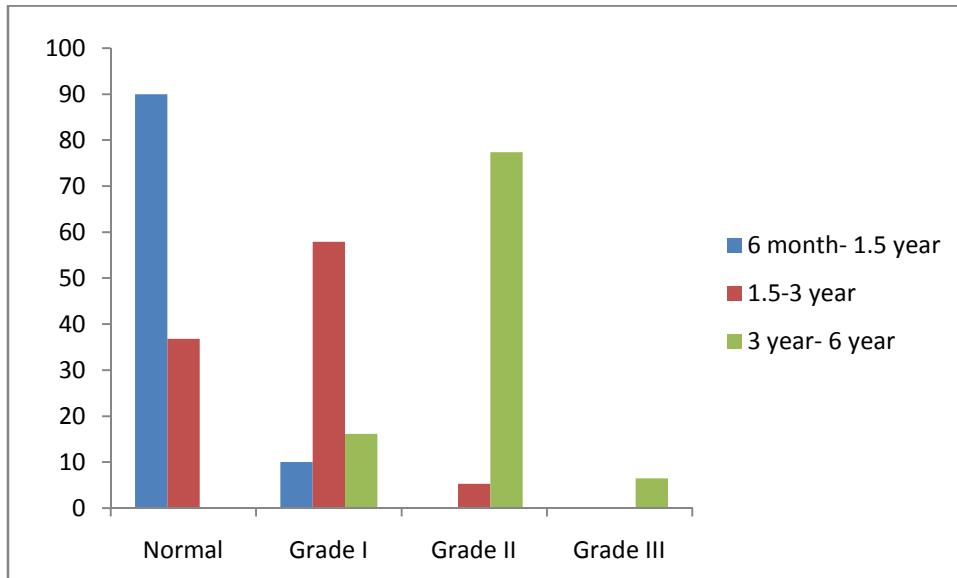


Fig. 1: Percentage of under nutrition among different age group

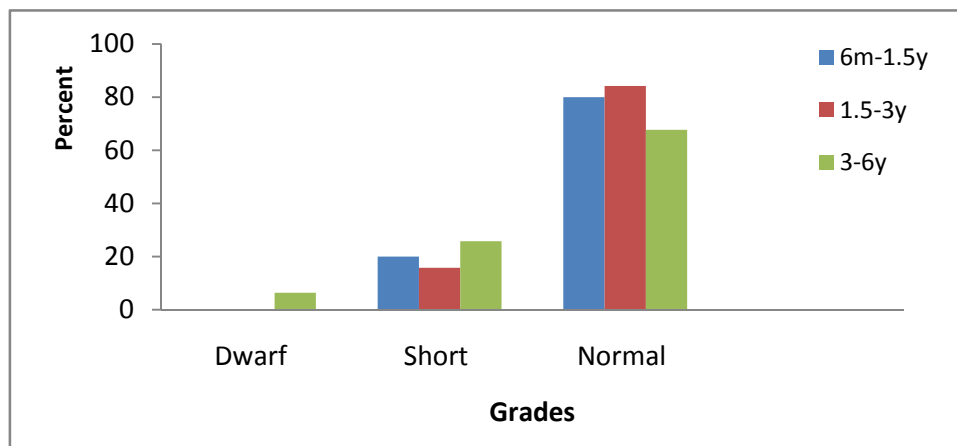


Fig. 2: Percentage of height for Age for different Age group