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NUTRIENT INTAKE AND FOOD ADEQUACY OF THE SCHOOL GOING CHILDREN OF ALLAHABAD DISTRICT

SHIKHA SINGH & SHIPRA SRIVASTAVA
Department of Foods and Nutrition, SHIATS, Allahabad, UP, India

ABSTRACT

Children require an adequate supply of nutrients for growth, energy and to maintenance of body functions. Their brains rely on a constant supply of nutrients in order to function properly. The present study was undertaken with objective to assess the meal pattern, dietary behaviour, preference of food variety and adequacy of nutrients in the diet of school going children and to identify the foods items preferred in their packed lunch.Total 150 samples were purposively selected from Allahabad district of UP. Data was collected with the help of pre-tested questionnaire, interviewing mother and other care takers. The questionnaire elicits information about General profile, Dietary Survey which includes the 24 dietary recall and food composition tables for meal pattern, dietary behaviour, and preference of food variety. The result reveals that the majority of children were non-vegetarian (79.59%) and following four meal patterns (61.22%). It was observed that the mean nutrient intake for energy, protein, iron & calcium was lower than the RDA in all the age groups. The fat intake was higher in all the age groups. In minerals, intakes are lower in all the age group except in 4-6 yrs age group in which mean calcium intake was slightly higher than the RDA.Most of the respondent preferred to give *Bread-Jam and Maggi* in their packed lunch. Hence, it was concluded that adequacy of nutrient intake were lower than the RDA. Children prefer to have fast foods, chocolates and cold drinks in their diet.

KEYWORDS: Children, Nutrients Dietary Behaviour Adequacy and Packed Lunch

INTRODUCTION

"Children are our future, and their mothers are its guardians" **(Lal, 2003).**Nutrition plays a vital role in growth and development of children. Inadequate nutrition may lead to malnutrition, growth retardation, reduced work capacity and poor mental and social development. Children require an adequate supply of nutrients for growth, energy in order to maintain body functions. Their brains rely on a constant supply of nutrients for proper and smooth function. Inadequate nutrition may lead to malnutrition, growth retardation, reduced work capacity and poor mental and social development **(Awasthi and Kumar, 1999; Manna *et al.*, 2011).** The dietary intake patterns of children have been of special concern since it has been found that eating patterns formed in early stage of life are likely to prevail in adulthood. They contribute to future man-power which can improve the socio-economic condition of developing countries.

Approximately 1/3 of our daily diet will be covered in our lunch, while we are at work or in school. That is why a good and hearty packed lunch and snacking important. The lunch box – requires a little planning. The objectives of the study were to assess the demographic profile of the respondents, the nutrient intake of the respondents, dietary pattern of school going children and to identify the foods items preferred in their packed lunch.

Among all age groups, the school age period is nutritionally significant because this is the prime time to build up body stores of nutrients in preparation for rapid growth of children **(Sati and Dahiya, 2012).**Apart from that, the population of school-going children contributes to future man-power which can improve the socio-economic condition of developing countries. Therefore a study was designed to assessthe nutrient intake,dietary pattern and to identify the foods items preferred in their packed lunch of the school going children.

MATERIALS AND METHOD

A total sample of 150 school going children aged between 4 to 9 years.Purposively sampling technique was used for sampling. Three divisionof Allahabad district of UPwere selected for the study (Muirabad, Mumfordganj and Katra).Datawas collected with the help of predesigned &pre-tested schedule by interviewing mother and other care takers for collecting information regarding demographic profile, nutrient intake, and dietary pattern of school going children.General profile included the data regarding children's name, age, and sex, income, educational status and occupation. All these were important for knowing the respondents socio-economic status.Dietary Surveywas conducted as described by **Park (2007).**It constitute an essential part of any complete study of nutritional status of individuals or groups, providing essential information on nutrient intake levels, sources of nutrients, food habits and attitudes. The nutrient intake of the subjects will be calculated on the basis of 24 hours dietary recall method. The diet was calculated for calories, protein, fat, fibre, calcium, iron, vitamin A, magnesium, phosphorus sodium, Vitamin C. The nutrient intake was calculated using the food composition table by **Gopalan*et al.* (2007)** and compared with the ICMR standard values. Eating habits of the respondents was recorded. Anthropometric measurements were concerned with the measurement of variations of physical dimensions, the gross composition and degree of nutrition. Hence, anthropometric measurements are useful criteria for assessing nutritional status. Best order of measurements: weight, head circumference, length.The data was compiled and analysed for determination of mean scores and percentage **Banerjee, (2013).**

RESULTS AND DISCUSSIONS

Majority of respondents 54 percent were 7-9 Years of age whereas only 46 percent respondents were 4-6 years of age. Nuclear family (70%) was more common than Joint families (30%)**. Mierzejewska (1995)** stated that the smaller the family size the better the nutritional status.Majorityof mothers were non-working (73.33%) whereas only26.66 percent mothers were working. **Nabag, (2011)** shows that about 31 % women were working and **Mercedes *et.al,* (2000)** mentioned that some factors that determine the child nutrition status were women's education and social status. There were significant differences ($p< 0.05$) between rural and urban school children in relation to parent's employment and significant differences were detected in relation to the nutritional status of the school children. Great majority of respondents (46 %)was found to have their family income in the range of 1-2 lakhsper month, 25.3 percentrespondent income ranges from 3-4 lakhswhereas only 10.66 percent were have income under 1 lakh and 18 percent respondent income lies between 2-3 lakhs. **Pipes and Peggy, (1981)** also, noted that children from low income families consumed less food and therefore, less energy and total nutrients than children from families with high income. **Ahmed *et.al,*. (1991)** confirmed that better economic situation can be a primary cause for better growth of school children because economic situation usually influences the kind and quantity of food consumed.Height and weight of the children was lower than standard data, it may inadequate intake of major nutrients shown in table 2.The results agreed with that of **Soeikerman*et al.,* (2002)** and **Oninla*et al.,* (2007)** who mentioned that the height and weight of school going children were lower than standard height

and weight given by NCHS, India. **Handa, *et.al.*,(2008)** done the similar results on the assessment of nutritional status of 7-10 yrs school going children.The mean nutrient intake for energy is lower than the RDA in all the age groups. The mean protein intake is higher in 4-6 yrs but lower in 7-9 yrs. The fat intake is higher in all the age groups. In minerals iron, magnesium & calcium intakes are lower in all the age group except in 4-6 yrs age group in which mean calcium intake is higher than the RDA as shown in table 3.Most of the respondent packed lunch contains Biscuit, Paratha + Sabji, Achar + paratha,Alaookaparatha, Bread + butter, Fruits respectively. Bread + jam, Maggi & Fried rice were taken occasionally.

CONCLUSIONS

Height and weight of the children was lower than standard data. Mean Nutrient intake was lower than the RDA. Most of the respondent preferred to take *Bread + jam*followed by *Bread + butter,Achar + paratha, Maggi etc*If emphasize were not taken then it likely to have a cumulative adverse effect that may place a child's school progress at risk and future health problems. Healthy food in terms of quality and quantity is a necessary condition for better academic performance.

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TABLES

Table 1: Distribution of Respondents on the Basis of Demographic Profile

Factors	Respondents N(%)
Age	
4-6 yrs.	69 (46 %)
7-9 yrs.	81 (54 %)
Family Type	
Joint	45 (30%)
Nuclear	105 (70%)
Working Status of Mothers	
Working	40 (26.66%)
Non-working	110 (73.33%)
Income Group	
Under 1 lakh	16 (10.66 %)
1-2 lakhs	69 (46 %)
2-3 lakhs	27 (18 %)
3-4 lakhs	38 (25.33%)

Table 2: Comparison of Mean Nutrient Intake with RDA

Nutrients	Mean Nutrient Intake					
	4-6 Yrs.			7-9 Yrs.		
	RDA	Intake	Difference	RDA	Intake	Difference
Energy (kcal)	1350	765.32	584.68*	1690	873	817*
Protein (g)	20.1	17.25	2.85*	29.5	23.1	6.4*
Fat (g)	30	20.78	9.22**	30	35.17	-5.17
Carbohydrate (g)	337.5	212.30	125.2*	265	190.13	74.87*
Calcium (mg)	600	522.7	77.3*	600	427.17	172.83*
Iron (mg)	13	4.56	8.44*	16	5.68	10.32*

*Significant at 5 %, **Significant at 1%

Table 3: Distribution of Respondent on the Basis of Height and Weight

Age	Standard Weight	Respondent's Weight	Standard Height	Respondent's Height
6 yrs.	16.6 kg	15 kg	116.2cm	115 cm
7 yrs.	22.9 kg	21.5 kg	121.7cm	120 cm
8yrs	25.3 kg	22 kg	127.0cm	128 cm
9 yrs.	28.1 kg	27 kg	132.3cm	130 cm

Table 4: Distribution of Respondent on the Basis of Type of Packed Lunch

Food Groups	Number	Percentage
Paratha + Vegetable	14	9.33 %
Potato stuffed paratha,	13	8.66 %
Maggi	23	15.33 %
Bread + butter	26	17.33 %
Bread + jam	30	20 %
Fried rice	12	8 %
Biscuit	5	3.33 %
Fruits	3	2 %
Achar + paratha	24	16 %