

# Nutritional contribution of mid day meal in daily energy and protein intake of primary school children in Kanpur district

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The concept of mid day meal has long history in India. In 1925, a mid day meal programme was introduced for children belonging to poor socio-economic status in Madras corporation area. It has been reported that mid day meal has catered to the nutritional needs of school children in both urban and rural areas. The present study was, therefore, an attempt to evaluate the nutritional contribution of mid day meal to the actual daily nutrient intake of primary school children. To attain the objective of the study, two hundred school children in the age group 6-12 years were selected from urban and rural areas using purposive random sampling. Hundred primary school children were selected from both the areas. Results of the survey conducted in 6 primary schools of Kanpur revealed that cyclic menu for six days was being followed by the schools undertaken in the study. It was found that *Tahari* and milk was the most liked (59%) meal, followed by *Dal chawal* (45%), *Dal roti* (35%), *Roti sabji* (31%) and least preferred meal was *Sabji chawal* (30%). The energy content of six days menu varied from 350-442 Kcal which is below the recommended norms of 450 Kcal.

**Key Words :** Mid day meal, Protein intake, Primary school children, Health, Malnutrition

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## INTRODUCTION

The national programme of nutritional support to primary education was launched as a centrally sponsored scheme on 15 August 1995. Mid day meal scheme was initiated on the basis of the philosophy that when children have to sit in the class with empty stomach, they cannot focus on learning (Verma, 2015). India's mid day meal scheme is the largest school nutrition programme in the world. Primary education in rural and urban areas in India

shows that mid day meal enhance school participation, especially among girls. There was considerable increase in the enrollment of the children in schools after the introduction of mid day meal scheme and the quantity of food served to the children was sufficient (Kumari *et al.*, 2009). Children suffer from malnutrition, poor health, growth retardation due to inadequate nutrition, poverty and ignorance of the parents and other environmental factors (Sachdeva and Davar, 2014).

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## METHODOLOGY

This present study was carried out in the year 2015-16; survey was carried out in months of January to April. Children belonging to the rural and urban areas of Kanpur district one block from each urban and rural were selected each block three primary school was selected for the

study. 200 sample respondents were selected through the purposive random sampling. The age group of children selected was 6 to 12 years.

### OBSERVATIONS AND ASSESSMENT

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

#### General and Socio-economic status of urban and rural school children :

The general profile of the selected respondents is presented in the Table 1. The distribution of respondents on the basis of age revealed that 39% of the urban and 34% of the rural children were between the age group of 6-7 years. While the 27% urban and 30% of rural children fall between 8-9 years. And remaining 34% urban and 36% rural children between the age group of 10-12 years. The percentage of boys was 45 and 40 from urban and rural groups and that of girls was found to be 55 and 60% from the urban and rural area, respectively. However, the numbers of boys were higher 36% in rural school whereas the percentage 60% of girls students was more in rural areas. The distribution of respondents according to the type of family revealed that majority of the respondents 97% of the urban and 93% of rural children

belonged to nuclear families while 3.0 % of urban and 7.0% of rural children were living in a joint family. It was found that the trend of nuclear families was more in urban areas. Family size the data reported that in urban areas maximum families 45.0 per cent were found 3 to 5 family member, while in rural area 48.0 per cent were found more than 7 family members in their families. With respect to family income the data reported that 31% of urban respondents belonged to families earning upto Rs.26,000 per year as compared to 26% of rural respondents. However, a relatively higher percentage of urban 60% respondents belonged to families earning between Rs.27,000-30,000 per year. Whereas 59% of rural respondents belonged to this category. Yearly income of 14% of urban and 10% of rural families was between Rs. more than 30,000 per year.

#### Ranking of meal according to the likeness of children :

There was significant difference in the preference of *Dal roti* among urban and rural school children. It was further concluded that *Tahari* and milk (29.5%) was preferred by most of the children in urban and rural areas. *Roti sabji* and *Sabji chawal* was liked by almost similar number of children *i.e.* 15.5 and 15%. Verma and Grover reported that *Roti* and *Dal* was most liked meal (43.4%)

**Table 1 : General and socio-economic status of urban and rural school children**

(n=200)

Profile	Urban area (n=100)		Rural area (n=100)		Total No.	% age
	No.	% age	No.	% age		
<b>Age(years)</b>						
6-7	39	39.00	34	34.00	73	36.5
8-9	27	27.00	30	30.00	57	28.5
10-12	34	34.00	36	36.00	70	35.0
<b>Gender</b>						
Boys	45	45.00	40	40.00	85	42.5
Girls	55	55.00	60	60.00	115	57.5
<b>Type of family</b>						
Nuclear	97	97.00	93	93.00	190	95.00
Joint	3	3.00	7	7.00	10	5.00
<b>Family size</b>						
3 to 5	45	45.0	14	14.0	59	29.5
6 to 7	25	25.0	38	38.0	63	31.5
More than 7	30	30.0	48	48.0	78	39.0
<b>Income (Rs./ year)</b>						
> 26000	31	31.0	26	26.0	57	28.5
27000-30000	60	60.0	59	59.0	119	59.5
< 30,000	14	14.0	10	10.0	24	12.0

**Table 2 : Ranking of meal according to the likeness of children****(n=200)**

Most liked meal	Urban (n=100)		Rural (n=100)		Total	
	No.	%age	No.	%age	No.	%age
<i>Roti sabji</i>	15	15.00	16	16.00	31	15.5
<i>Dal chawal</i>	25	25.00	20	20.00	45	22.5
Tahari and milk	29	29.00	30	30.00	59	29.5
<i>Dal roti</i>	12	12.00	23	23.00	35	17.5
<i>Sabji chawal</i>	19	19.00	11	11.00	30	15.0

**Table 3.1 : Average daily nutrient intake of urban and rural MDM school children by midday meal in daily diet**

Age (Years)	RDA for energy (Kcal)	Urban area		Difference value	Rural area		Difference value
		N	Energy(Kcal) (Mean ±SD)		N	Energy(Kcal) (Mean ±SD)	
6	1350	15	404.4±38.56	945.6	15	392.9±32.511	957.1
7	1450	24	394.8±32.66	1055.5	19	401.8±36.937	1048.2
8	1550	13	391.8±36.86	1158.2	16	380.5±27.591	1169.5
9	1690	14	401.7±38.54	1288.3	14	383.4±35.068	1306.6
10 to 12		34			36		
Boys	2190		380.0±32.56	1810		392.1±30.499	1797.9
Girls	2010		374.9±34.68	1635.1		395.1±34.636	1614.9

**Table 3.2 :**

Age (Years)	RDA for protein (g)	Urban area		Difference value	Rural area		Difference value
		N	Protein (g) (Mean ±SD)		N	Protein(g) (Mean ±SD)	
6	18.1	15	14.7±3.50	3.7	15	13.4±3.06	4.7
7	20	24	13.6±3.9	6.4	19	14.4±3.42	5.6
8	23	13	13.6±3.8	9.4	16	12.4±2.32	10.6
9	25.1	14	14.4±3.49	10.7	14	12.9±2.94	12.2
10 to 12		34			36		
Boys	34.3		13.2±2.91	21.1		13.2±2.91	21.1
Girls	35.0		13.7±3.22	21.3		13.7±3.22	21.3

followed by rice with dal (25.6%), Daliya (14.8%), vegetable pullao (6.71%) and rice chana pullao by school children in Punjab (Table 2).

Table 3.1 indicated that in urban area, MDM primary school children were found less energy intake of RDA by 945.6-1810Kcal across all ages. In case of rural primary children differences range from 957.1-1797.9 Kcal. The maximum difference was found in age group of 10-12 years in both urban and rural areas. The energy mean is higher in urban children compared to rural children. In both urban and rural areas the energy was found lower than the recommended dietary allowances across all ages.

Table 3.2 indicated that in urban area, MDM primary school children were found less protein intake of RDA by 3.7-21.3g across all ages. In case of rural primary

children differences range from 4.7-21.3 g. The maximum difference was found in age group of 10-12 years in both urban and rural areas. The protein mean is higher in urban children compared to rural children. In both urban and rural areas the energy was found lower than the recommended dietary allowances across all ages.

### Conclusion :

The diet of school children was deficient in all the food groups ultimately resulted in low intakes of nutrients. It was found that all nutrient intakes were less than the recommended dietary allowances.

### Recommendations :

– The menu should be revised from time to time because it sustains interest in children.

– Inclusion of green leafy vegetables, fruits in the mid day meal programme to meet the micronutrient deficiency of school children.

### LITERATURE CITED

ICMR (2010) Nutrient requirements and recommended dietary allowances for Indians. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India

**Kumari, S.R., Devi, M.S. and Rani, B.S. (2009).** Impact of mid day meal programme in tribal areas of east Godawari district of Andhra Pradesh. *J. Community Guidance &*

*Res.*, **26** (1): 49.

**Verma, Lalita (2015).** Impact of mid day meal programme in India. *Internat. J. Multidisciplinary Approach & Studies*, **2**(1): 348-547

**Verma, S. and Grover, K. (2009).** A report on mid day meal: Evaluation of mid day meal scheme in Punjab. Punjab Agricultural University, Ludhiana, Punjab (India).

**Sachdeva, Monika and Davar, Vinti (2014).** Clinical profile of mid day meal beneficiaries of primary schools in Kurukshetra District. *J. Nursing & Health Sci.*, **3** (1): 01-04.

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