



IMPACT OF MID DAY MEAL ON NUTRITIONAL STATUS OF 7-9 YEAR OLD CHILDREN IN HYDERABAD

^{1,*}Shruti Kabra and ²Zubaida Azeem

¹Research Scholar, Osmania University, Hyderabad, Telangana, India

²Retd. Professor, Department of Food and Nutrition, Osmania University, Hyderabad, Telangana, India

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ABSTRACT

Mid day meal programme provides food free of cost to over 12 crore children of on all working days. It is a fact that mid day meal had a positive influence on the various objectives of the scheme such as enrolment, attendance, social equity but the contribution of mid day meals to the nutritional status is still not clear. This paper attempts to study the nutrients supplied through mid day meal and its impact on nutritional status of primary school children. School children of age 7-9 years were selected randomly from schools of Hyderabad. The results of the anthropometric data revealed that the height and weight of primary school children were lower than the ICMR standards for that age group. The data on dietary intake revealed that the intake of children was lower when compared to the RDA but mid day meal did have a significant contribution to the day's intake of the children.

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INTRODUCTION

School going children form an important vulnerable segment of the nation's population. They constitute 20 to 25 per cent of the total population in India. Developing countries like India, account for about 40 percent undernourished children in the World which is mainly due to the dietary inadequacy in relation to their needs (Mitra et al., 2007). School age is a period of physical growth and development, when the child undergoes rapid mental, emotional and social changes. It is the period of utmost significance and presents a general health status of a community and nation as a whole. Adequate Nutrition plays an important role in growth and development which may also effect the growth in later years of life. Under the National Programme of Nutritional support to Primary Education, the mid day meal programme was started with a view to enhance enrollment, retention and attendance and also to improve the nutritional status of children. The primary school children are provided a meal free of cost on all working days under the mid day meal programme.

The meal should provide 450 K.Cals and 12g of protein. Hence a study was conducted to assess the impact of the mid day meal on the nutritional status of the beneficiaries.

MATERIALS AND METHODS

Selection of schools

The study was conducted in different areas of Hyderabad. A convenient selection of ten schools was made to study the nutritional status of school children taking mid day meal. Subjects in the age group of 7 to 9 years were randomly selected from schools in Hyderabad.

Collection of data

The required data were collected through personal interview technique using a structured schedule. Nutritional status of children was assessed by the help of anthropometric measurements that included height, weight as per standard methods (Jelliffe 1966). The meals served were assessed in terms of its nutrient content and quantity consumed by the children.

Thereafter, the amount of ingredient/child was calculated. Further, the nutrient content of the meal/child/day was calculated using Nutritive value of Indian foods. Dietary intake: The detail on the food intake by the children was collected for three consecutive days by using 24 hours recall method. The different food items consumed was converted into their raw equivalents and average daily intake of food and nutrients was calculated by using ICMR nutritive value tables. The nutrient intake was compared with Recommended Dietary Allowances. The percent adequacy of nutrient intake was calculated. % contribution of mid day meal towards the nutrient intake and RDA was also calculated

were found to be lower than the ICMR standard for all the age groups and was found to statistically significant. From table 3 it was illustrated that the mean nutrient intake of girls and boys were lower than the RDA but the mean intake was found to be higher in boys. It was also observed that the mean protein intake was better than the calorie intake of children but was lower than the RDA. The mid day meals provided more nutrients when compared to the mean daily intake of children than when compared to RDA, which highlights that the home meals provide lesser nutrients as per the RDA and mid day meals have a significant contribution in the children's daily intake.

Table 1. Cyclic Menu of the Mid Day Meal Programme

Day	Menu	Mean cooked Quantity consumed by children (g)	Mean Energy (K Cals)	Mean Protein (g)
Monday	Rice + Sambhar	180+100	368	7.8
Tuesday	Rice+ Aloo matter	180+100		
Wednesday	Rice+ Veg Kurma	180+100		
Thursday	Rice + dal kadi	180+120		
Friday	Rice + Palak dal	180+100		
Saturday	Veg Biryani + Dalcha	200+100		

*Egg was given thrice a week

Table 2. Mean and Standard deviation of Height and Weight of boys by age

Boys				Age (in Yrs)	Girls											
Weight (in kgs)		Height(in cm)			Weight (in kgs)		Height (in cms)									
Mean	SD	ICMR Std	P Value		Mean	SD	ICMR Std	P value								
21.9	2.6	22.7	0.0095	117.4	3.1	124.3	0.0001	7	18.8	3.5	22.3	0.0001	112.7	5.9	123.6	0.0001
23.0	2.5	25.2	0.0001	124.7	3.5	130.1	0.0001	8	22.6	4.3	25.0	0.0035	123.8	7.8	129.2	0.0001
27.2	5.3	28.0	0.1952	133.5	5.0	134.6	0.0113	9	23.5	2.1	27.6	0.0001	125.0	6.9	135.0	0.0001

Table 3. Assessment of Nutrient Intake of 7 – 9 years old children

Nutrient	RDA	Mean (SD) daily Nutrient intake (boys)	Mean (SD) daily Nutrient Intake (girls)	% of MDM to the RDA (boys)	% of MDM to the mean Intake (boys)	% of MDM to the RDA (girls)	% of MDM to the mean Intake(girls)
Energy (K.Cal)	1690	1184 (135)	1034 (210.9)	22	31	22	36
Protein (g)	29.5	26 (4.2)	22.7 (5.6)	27	31	27	35
Fat (g)	30	23 (3.8)	21.0 (7.5)	21	28	21	30
Iron (mg)	16	7 (2.2)	5.9 (2.3)	19	42	19	50
Calcium (mg)	600	360 (178.2)	165.1 (63.5)	9	15	8	32
β-Carotene (µg)	4800	1524 (745.2)	902.4 (252.3)	13	39	32	46
Vitamin C	40	52 (28.6)	49.8 (26.3)	55	43	50	40

RESULTS AND DISCUSSION

A cyclic menu was provided to the school children in the mid day meal programme, the meals were prepared and supplied to the schools through the centralized kitchen. From Table 1 it was illustrated that the mean energy content of the meals served in the mid day meal programme was found to be 386 K. Cals which was found to be lower than the recommended norm of 450 K.Cals. The mean protein content of the meal was 7.8g against the 12g suggested by NP-NSPE. The quantity consumed by the children was found to be lesser than that suggested by NP-NSPE, as per the norm 100g of rice / wheat per child is given but the quantity is high for the children to consume at one meal, which resulted in the decreased calorie and protein intake of the children.

In the present study, school going children aged 7-9 years consuming mid day meal were selected. The results of the Anthropometric measurements were compared to the ICMR standards. The above table reveals that the weight and height of the boys increased with age but the mean weight and height

The micro nutrient from mid day meal was found to be better than that provided by the home meals.

Conclusion

The mid day meals provided lesser calorie and protein when compared to the norms but when compared to the children's day's intake, mid day meal contribution was significant especially for micronutrients. Nutrient dense recipes should be included in the mid day meal so as to meet the norms and which would also help to increase the amount of nutrients provided by the Mid day meals in the diet of the children which would also reflect on the nutritional status of children.

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