

## **IMPACT OF MID DAY MEAL PROGRAMME ON ANTHROPOMETRIC STATUS OF SCHOOL CHILDREN**

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**Abstract:** The Mid-Day Meal Programme (MDM) is guided by the principle that all children have right to life, food, education and development. The Mid-Day Meal programme is launched with the objective of improving attendance of children, social equity and simultaneously improving nutritional status of children. There are so many studies which showed that mid-day meal improves the attendance of the student but its impact on nutritional status of children is almost negligible Hence, present study lies on the objective whether the mid day meal programme has any impact on anthropometric measurement of school children. For this study, schools of Pusa Block were selected where mid-day meal programme was running regularly. For this study three schools of Pusa block were selected. Initially total numbers of students enrolled were selected but due to their irregularity in attendance, the research was stucked to 120 children. They were grouped into two group: One was Experimental consisting 100 children's who took MDM & the other control group was consisting 20 children did not take MDM. Mid day meal programme running in these schools was observed very carefully.

Anthropometric measurement, i.e. measurement of height, weight & MUAC was done before and after three months of mid-day meal/home lunch consumption. After three months significant improvement was found in the height, weight, and MUAC of the experimental children, especially in primary class. Where as in control group, only significant improvement in height were found & that too, only in girls. It can be concluded from the study that more good results would have been observed if the quality & quantity of meal as fixed in the scheme was strictly followed. Micronutrient supplementation should be provided regularly to the children and the school meal programme should be regularly monitored for improving quality of meal.

**Keywords:** Mid day meal, Anthropometric measurement, School children.

### **Introduction**

**“A wealthy nation begins with healthy children”.** Therefore children and their well being are the basic concerns of every nation. There 444 million children in India under the age of 18yr. This constitutes 37% of the total population in the country (Census2011). A nationwide survey called the Rapid survey on children (RSOC), conducted by ministry of women and child development in 2013-14 in league with Unicef, showed that the portion of underweight children in India was 29.4 percent. The major nutritional issues of concerns in

India are consumption of low quantity and quality of nutrients, thus leading to nutritional health disorders especially among children. The school age period has been called the latent for growth. According to the results of the studies conducted on school children it has been shown that a majority of the school children consume inadequate diets and are malnourished and tend to perform poorly on test of cognition than those who eat adequately. The cost of malnutrition has been estimated at two to three percent of the gross domestic product per year on the country's economy.

It is then likely that giving children a daily meal at school may improve their scholastic achievement through several mechanisms increasing the time spent in school, improving certain cognitive function and attention to tasks and indirectly improving nutritional status. Therefore with a view to enhance retention and attendance by way of improving nutritional level of children, a Mid-Day Meal Programme (MDMP) was first introduced for disadvantaged children of Madras Municipal Corporation in 1925. After its success, Government of India introduced National Programme of Nutritional Support to Primary Education (NP-NSPE) on 15 Aug. 1995 in Government schools.

It is well known that now a days only children belonged to poor family study in government schools. In this context mid day meal seems to be an appropriate programme to combat childhood malnutrition. Keeping in view the national perspective of eliminating nutrient deficiencies in the next generation by implementing MDM programme the current research was undertaken to evaluate the efficacy of mid day meal programme in improving the nutritional status of the school children of 7-14 yrs of age. The research was done in the schools of Pusa situated in Samastipur (Bihar).

## **Materials and Methods**

### **Selection of Block and Schools**

Since the research on mid day meal programme was to be done in Dr. Rajendra Prasad central Agricultural University in Samastipur district (Bihar), hence Pusa block of Samastipur was selected purposely in this study.

Out of five schools situated in Pusa, three schools were selected because in these schools mid day meal programme started from same year March 2005 and was running regularly. In these three schools one was basic school (up to class VIII) and two were primary schools (up to class V).

### Observation of Mid –Day Meal Programme in the Schools

The mid day meal programme conducted in the schools were observed carefully. Questions related to mid day meal programme running in the schools were asked to subjects as well as school authority through the developed questionnaire. Its capability to remove class room hunger and increase interest in class room study and other activities were examined during study.

### Selection of Subjects

The subjects were selected purposely from schools. All the students could not be selected as many were very irregular in their attendance. Hence due to their irregularity the number was limited to 120 only, including Class I to VIII children of the age group of 7 to 14 yrs. For this study those subjects were selected which could answer the question rightly. Some children did not take mid-day meal as they prefer home lunch, hence the subjects were further divided into experimental group (who ate mid-day meal) and control group (did not eat mid-day meals). Till the end of the study 100 experimental and 20 control children were present regularly.

### Anthropometric measurement of Subjects

Height and weight measurement of all 120 subjects were taken according to the procedure suggested by Jelliffe (1966). The mid upper arm circumference (MUAC) of all children were measured following the standard methods. The measurement was taken on the left hand. These all measurements were taken before and after three months of mid day meal / home lunch consumption. Based on this measurement nutritional status of all children were classified and compared with standard.

### Result and Discussion

**Table 1: Socio-Economic status of subjects**

Particulars	Subjects (N=120)			
	Boys (60)		Girls (60)	
	Frequency	Percentage	Frequency	Percentage
<b>A. Age (years)</b>				
a) 7-9	21	17.5	20	16.7
b) 10-12	22	18.3	26	21.7
c) 13-15	17	14.2	14	11.6
<b>B. Education</b>				
a) Upto V	30	25.00	30	25.00
b) VIth Class	10	8.33	10	8.33
c) VIIth Class	10	8.33	10	8.33
d) VIIIth Class	10	8.33	10	8.33
<b>C. Food habit</b>				

a) Vegetarian	39	32.50	43	35.83
b) Non-vegetarian	21	17.50	17	14.16

A look of Table 1 reflects that the majority of children who gladly accepted to be a part of study were from the Class V and the age range accordingly were between 10-12 years. As regards food habit approximately 2/3 rd were vegetarians.

It is not worthy to mention that majority of experimental subjects (47%) had monthly family income in the range of rupees 2001 to 5000. Where as in control group majority of subjects (45%) had monthly family income in the range of rupees 5001 to 7000.

### Impact of Mid –Day Meal on Nutritional Status of Subjects

An evaluation of mid day meal and home lunch on Nutritional Status of children was done after three months of consumption, which were based on change found in anthropometric measurement of the subjects.

The changes found in experimental and control subjects have been presented separately in table 2 and 3.

**Table 2: Impact of mid day meal on Experimental Subjects (N=100)**

Measurement	Initial (Mean ± SD)	After 3 months (Mean ± SD)	't' value
<b>Boys (N=50)</b>			
Height (cm)	130.14 ± 11.90	130.30 ± 11.81	3.855*
Weight (kg)	24.88±7.58	25.24±7.64	3.280*
MUAC (cm)	17.22±2.05	17.38±1.98	3.661*
<b>Girls (N=50)</b>			
Height (cm)	129.71±12.79	129.94±12.72	4.915*
Weight (kg)	25.32±8.39	25.95±8.43	5.529*
MUAC (cm)	17.40±1.87	17.61±1.84	4.452*

Significant at 5% level

**Table 3: Impact of home lunch on control subjects (N=20)**

Measurement	Initial (Mean ± SD)	After 3 months (Mean ± SD)	't' value
<b>Boys (N=10)</b>			
Height (cm)	142.20±8.90	142.20±8.90	0.00
Weight (kg)	35.10±7.29	35.65±66.5	1.383 <sup>NS</sup>
MUAC (cm)	20.85±1.59	20.90±1.46	0.23 <sup>NS</sup>
<b>Girls (N=10)</b>			

Height (cm)	140.0±6.72	140.22±6.64	2.887*
Weight (kg)	34.36±7.46	34.54±8.15	0.631 <sup>NS</sup>
MUAC (cm)	18.77±1.83	18.77±1.83	0.00

\*Significant at 5% level. <sup>NS</sup> Non-Significant.

### Height (cm)

It is evident from the table that there was a significant improvement in the height of experimental subjects after three months of mid-day meal consumption. In experimental group, height of boys and girls increased from 130.14±11.90 (cm) to 130.3±11.81 (cm) and from 129.71±12.79 to 129.94±12.72 (cm) respectively, which was significant at 5 per cent level. Whereas in control group, there was no changes found in height of boys after three months of home lunch although height of girls were increased from 140 ± 6.72 to 140.22 ± 6.64 (cm) which was significant at 5 per cent level.

### Weight (kg)

A significant change was found in the weight of experimental subjects. Weight of boys increased from 24.88 ± 7.58 to 25.24 ± 7.64 (kg) whereas weight of girls increased from 25.32 ± 8.39 to 25.95 ± 8.43 (kg), both were significant at 5 per cent level. However in control subjects the changes found in weight of boys and girls were non-significant.

### MUAC (cm)

In experimental group, MUAC (Mid-Upper Arm Circumference) of boys and girls increased from 17.22±2.05 to 17.38±1.98 (cm) and 17.40±1.87 to 17.61± 1.84 (cm) respectively after three months of mid-day meal consumption. Which was significant at 5 per cent level.

Contrary to this finding non-significant changes were found in the MUAC status of control subjects in which MUAC in boys were increased from 20.85±1.59 to 20.90±1.46 (cm) whereas no changes in the MUAC of girls were found after three months of home lunch consumption.

Powell *et al.* (1998) conducted a randomized, controlled trial of giving breakfast to undernourished and adequately nourished children. Both groups were stratified by class and schools, and then randomly assigned to breakfast or control groups. After the initial measurement breakfast was provided every school day for one school year. Whereas children in the control group were given one-quarter of an orange and the same amount of attention as

children in the breakfast group. After one year, compared with the control group, height and weight improved significantly in the breakfast group.

Naik (2005) evaluated the Akshara Dasoha scheme of Karnataka and found that 72 per cent of the parents felt that their children had gained weight because of mid-day meal. Similar results were found by Hall *et al.* (2007) who evaluated the effectiveness of a school nutrition programme on the weight gain and growth of Vietnamese school children and found that t-test showed a small but statistically significant difference between groups in their average gain in weight and height: 3.19 versus 2.95 kg ( $P < 0.001$ ) and 8.15 versus 7.88 cm ( $P = 0.008$ ).

Contrary to it Adelman *et al.* (2008) concluded that no evidence was found about the effect of food for education programme on anthropometric status of the school children in their sample.

### **Conclusion**

It can be concluded that mid day meal removed the class room hunger. It showed positive result on the nutritional status of children especially on the primary class children. A positive impact on height, weight and MUAC i.e. on anthropometric status as a whole was observed through MDM.

Effort should be made by school authority for freedom to buy foods from local market other wise delay in transportation negatively effect the health of children. The menu suggested for mid day meal in government plan is sufficient for growth of children hence it should be strictly followed. There should be regular monitoring system for improving quality and regular supply of meal and eradicating corruption such as pilferage of foods by various intermediaries.

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