

# “Survey on School Food Policies and Practices in Allahabad”

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## Abstract

In the present investigated study, the nutritional health status of school going children in Allahabad was assessed for the survey which was conducted during the present dissertation. It was done by assessing their clinical health status and quality of food intake by the children in both the areas of study. 60 children of 5-9 years of age were selected from the Allahabad area. Mid Day Meal was the integral part of the study. The food was not prepared in the schools but instead, it was supplied to the schools by an NGO in Allahabad. The food samples were examined and analyzed for the evaluation of the quality of food samples being provided in the MDM for schools. At the same time, survey was also conducted on the student's reviews on the food provided in the schools under MDM programme. The RDA value of calories of children is 400 Kcal/day and the food samples being provided in the schools was having 380 Kcal value on average basis. At the end of this survey, it was found that there is some lacking in the facilities of the food supplier such as the improper cleanliness, unhygienic utensils and washing areas. There is need to improve the management system of MDM in schools for the betterment of school going children in Allahabad.

**Keywords:** *Mid Day Meal Programme, NGO, Food frequency, RDA*

## 1. Introduction

The future of the society depends on the quality of life of the children. The major objective of this research was “To assess the nutritional health status of primary school children of Allahabad”, by assessing their clinical health status and the quality of food intake by the children in both the areas of study. The investigation of nutritional status of 5-9 years school going children were selected from 20 different schools of Allahabad district, India

The National Program of Nutritional Support to Primary Education, commonly known as the Mid-Day Meal Program, was launched by the Indian government in August of 1995 to boost enrollment, retention, and attendance rates for children, while also improving nutrition and health outcomes (Government of India). In September of 2004, the program transitioned from raw grains to cooked meals, consisting of a minimum of 300 calories and 8-12 grams of protein per child. Finally, in July of 2006, the Program standards were increased, requiring 450 calories and 12 grams of protein per child per day, with special stipulations to provide iron, folic acid, and other essential stipends. The 2006 revision also provided subsidies to schools to cover cooking and preparation costs.

About 70% of these children are undernourished and there is about 30% deficit in energy consumption and over 75% of the children have dietary micronutrient deficit of about 50% **National Nutrition Monitoring Bureau (NNMB) surveys (2000).**

Despite the broad-based efforts of the central government for more than a decade and a half and a few pioneering efforts earlier on, the problem of malnutrition, anemia, deficiency in vitamin A and Iodine is very common among children in India. Today, 94 percent of children in the age group of 6 to 9 are mildly, moderately, or severely underweight. About 67.5 percent of children under 5 years and 69 percent of adolescent girls suffer from anemia due to iron and folic acid deficiency **GOI, (1996)**.

## 2. Methodology

### 2.1 The potential benefits of nutritious midday meals are many:

**2.1.1 Promoting school participation:** Midday meals have big effects on school participation, not just in terms of getting more children enrolled in the registers but also in terms of regular pupil attendance on a daily basis.

**2.1.2 Preventing classroom hunger:** Many children reach school on an empty stomach. Midday meals can help to overcome this problem by preventing “classroom hunger”.

**2.1.3 Facilitating the healthy growth of children:** Midday meals can also act as a regular source of “supplementary nutrition “for children, and facilitate their healthy growth. For instance, midday meals rich in iron can help to prevent “anemia”, a widespread cause of weakness and poor growth among children.

**2.1.4 Fostering social equality:** Midday meals can help to spread egalitarian values, as children from various social backgrounds learn to sit together and share a common meal. In particular, midday meals can help to break the barriers of caste and class among school children. Appointing cooks from Dalit communities is another way of teaching children to overcome caste prejudices.

**2.1.5 Intrinsic educational value:** A well-organized midday meal can be used as an opportunity to impart various good habits to children (such as washing one’s hands before and after eating), and to educate them about the importance of clean water, good hygiene and related matters.

**2.1.6 Enhancing gender equity:** The gender gap in school participation tends to narrow after midday meals are introduced, as midday meals erode the barriers that prevent girls from going to school. Midday meals also provide a useful source of employment for women, and help to liberate working women from the burden of having to feed children at home during the day. In these and other ways, women and girl children have a special stake in midday meals.

### 2.2 Plan of work

Data on the design of the feeding program (including type of school, location of school, number of schools, who designed and implemented the feeding program, stated

objectives of the feeding program, source of financial support for the feeding program)

Description of the intervention (including the process of procuring food, what type of food was fed, serving size and nutritional value, how frequently it was fed, time of the day the food was fed, social and institutional setting of the intervention, etc.)

Process of delivering the food to the children (was it peer supervised, teacher supervised, supervised by lunchroom staff, or by volunteers?)

Issue of monitoring food intake and compliance, quality/acceptability (cultural sensitivity) of food given.

The food was not prepared in the schools but instead it was supplied to schools by an NGO in Allahabad.

The survey of food samples along with service provider and its facilities and pre-cooking areas was evaluated.

The food samples were evaluated on the basis of calorie content, protein content and overall food quality.

At the same time, the school children were questioned about the quality of food being provided under the MDM programme, by the government as well as NGO in Allahabad. The nutritional health status as well as the food samples evaluation was evaluated by the present survey.

## 3. Results and Discussion

### 3.1 Food service provider survey

The survey was performed on the Food service provider of the Mid Day Meal in the observed area of Allahabad. The findings of the survey are in the form of receiving, storing, pre preparation, pre cooking, food serving and washing. The data was recorded as the adequate space, cleanliness and ventilation of the site and location. The receiving and ventilation in the FSP was found satisfactory but cleanliness and hygiene was not satisfactory. It was recorded as 2, 3 and 1 in the form of scores as described above. The raw material storage facilities were having adequate space but proper hygienic condition was not maintained. Same was the condition with the ventilation. The scores were 2, 1 and 1 resp.

The pre preparation of the food material was satisfactory regarding adequate space and cleanliness but the ventilation was excellent. The overall scores were recorded as 2, 2 and 3 resp.

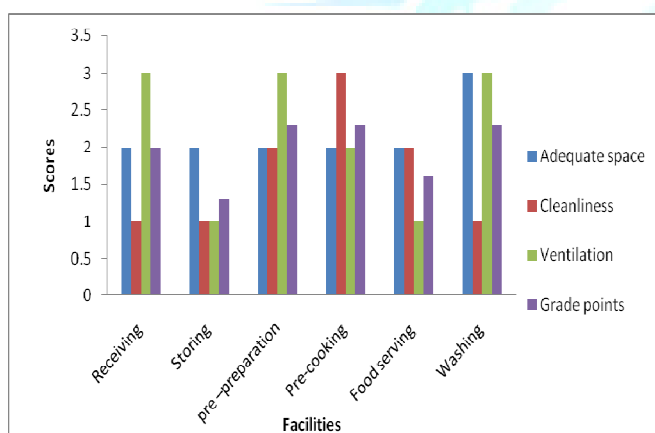
About the pre cooking, adequate space was good and given 2 points. While the hygiene was well maintained with the score of 3 and it was observed that the ventilation was also good and was given 2 points. Washing area of the utensils used for storage and carrying of food material was having adequate space and given the score of 3, while ventilation was excellent with score of 3 points. About the cleanliness and hygienic conditions in washing area, it was doubtful and given 1 point. The above findings were observed and recorded during the survey of Food Service provider.

**Table no. 3.1 Food service provider survey**

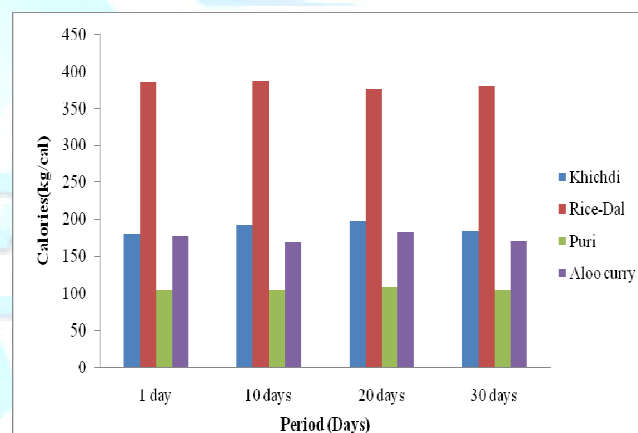
Sr.no	Area of working	Adequate space	Cleanliness	Ventilation	Grade points
1	Receiving	2	1	3	2
2	Storing	2	1	1	1.3
3	Pre-preparation	2	2	3	2.3
4	Pre-cooking	2	3	2	2.3
5	Food serving	2	2	1	1.6
6	Washing	3	1	3	2.3

**Table no.3.2 Calorie evaluation**

Sr.no	Sample	Calorie evaluation			
		1 day	10 days	20 days	30 days
1	Khichdi	180	193	198	184
2	Rice-Dal	385	387	376	380
3	Puri	106	106	110	106
4	Aloo curry	178	170	183	172



**Fig no. 3.1 Survey graph for service provider**



**Fig no 3.2 Survey graph of Calories**

### 3.2 Determination of calories

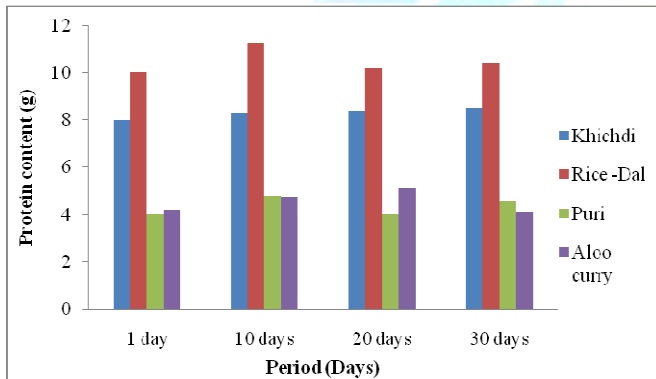
During the present study, Calorie content of the food samples from Mid Day Meal was evaluated. Food samples were khichadi, Rice-Dal, Puri and Aloo curry. Samples were analyzed on calorie content on 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day and the obtained values for Khichadi sample were 180, 193, 188 and 184 respectively. Rice-Dal sample values were 385, 387, 376 and 380 for 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day respectively. Puri sample recorded values as 106, 106, 108 and 106 for 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day respectively. Aloo curry on evaluation given the following values as 178, 170, 183 and 172 for 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day respectively. Standard value for children calorie daily intake is 400.

### 3.3 Determination of Protein

Protein content of the test samples collected during the present investigation. The test samples included Khichadi, Rice-Dal, Puri and Aloo curry. Samples were the food belonging to the Mid Day Meal programme of Allahabad schools. Values for Khichadi were 8.4, 8.3, 8.4 and 8.5 on 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day respectively. Rice-Dal sample recorded values were 10, 11.3, 10.2 and 10.4 on 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day. About puri sample, values were 4, 4.8, 4 and 4.6 on 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day respectively. Finally for Aloo curry, recorded values were 4.21, 4.75, 5.12 and 4.10 on 1<sup>st</sup> day, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> day respectively. Standard set value for daily protein intake of school going children is 12.

**Table no. 3.3 Determination of Protein in food samples**

Sr.no	Sample	Protein evaluation			
		1 day	10 days	20 days	30 days
1	Khichdi	8	8.3	8.4	8.5
2	Rice -Dal	10	11.3	10.2	10.4
3	Puri	4	4.8	4	4.6
4	Aloo curry	4.21	4.75	5.12	4.10



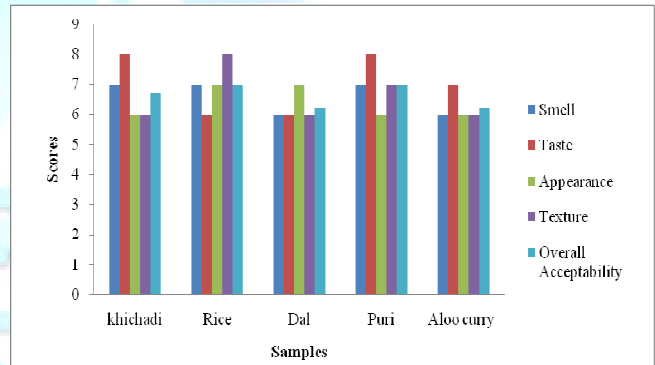
**Fig no.3.3 Graph of Protein**

### 3.4 Sensory evaluation (9 point Hedonic scale)

A sensory evaluation was done for the evaluation of the overall acceptability of the food samples provided and served in the mid Day Meal programme in schools of Allahabad. Total 20 schools were selected and 3 students from each school, making the total no. of students to 60. Sensory evaluation (based on appearance, taste, smell and texture) of the food item served in the school was done on the day of visit. The food samples examined during the present sensory evaluation were Khichadi, Rice, Dal, Puri and Aloo curry. Samples were given points on the student’s survey and observations. About Khichadi sample, Taste was best but it was lacking in appearance and texture to some extent. Rice sample was having good texture but taste was not so good as compared to other samples. Dal sample was good in appearance but it was lacking in the taste, smell and texture. About puri sample, Taste was good as compared to smell, appearance and texture. For the aloo curry sample, findings were good and satisfactory for Taste but slightly lacking in smell, appearance and texture. The overall acceptability of the Khichadi sample was recorded as 6.7, which suggests that it was more preferred by the students.

**Table no. 3.4 Sensory evaluation chart**

Sample	Smell	Taste	Appearance	Texture	Overall Acceptability
khichadi	7	8	6	6	6.7
Rice	7	6	7	8	7
Dal	6	6	7	6	6.2
Puri	7	8	6	7	7
Aloo curry	6	7	6	6	6.2



**Fig no.3.4 Sensory evaluation graph**

### 4. Conclusions

From the investigation study (survey), it can be concluded that the nutritional Health status of primary school children found to be satisfactory, but the hygiene of food service provider needs some improvement regarding the proper cooking shed, washing areas and hygienic utensils. Since the foods samples provided in M.D.M. are having near to standard values of R.D.A for children (380 Kcal and standard value is 400 Kcal), the samples were found satisfactory. There was no major lacking in the distribution system of M.D.M in primary schools, only hygienic condition of food service provider needs some improvement.

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