

## **Nutritional analysis of Mid-Day Meal of Utter-Pradesh.**

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**Abstract:** Primary Education means education that is first formally imparted to children. Primary education is imparted in two types of schools- Primary school and upper primary school. In 1937, the outline of basic education was presented by Mahatma Gandhi in Vardha conference. It is currently known as primary education. Various commissions and schemes for the improvement and spread of primary education of independence were implemented. The major schemes are Sarva Shiksha Abhiyan, DPEP, Operation Black Board and Middle day Meal Scheme. The middle day meal scheme was inaugurated from 15 August 1995. The objective of starting the program in the early stages was to increase enrolment, retention and attendance as well as to improve nutrition levels in children. But despite almost 30 years of implementation of the Mid-Day Meal programme, there has been an improvement in student enrollment and retention, but there is still a need for relative improvement in student's class attendance and their nutritional level.

**Key words:** Primary Education, MDM, Nutritional level.

**Introduction:** Primary Education means education that is first formally imparted to children. Primary education is imparted in two types of school- Primary school and upper primary school. Class 1 to 5 educations is imparted in primary school. In these schools, the child takes admission at the age of 6 and studies till the age of 11 years. Whereas in upper primary schools students are taught from class 6 to 8. In these schools, the child takes admission at the age of 11 and studies till the age of 13 years. Primary education is compulsory education, it was mentioned in Article 45 of the Constitution before 2009, but to make it more effective, it has been added to Article 21A under the Fundamental Rights. According to this, all children up to 14 years have the fundamental right to get primary education. There are various schemes like DPEP, SSA, Operation Black Board and Mid-Day Meal programme etc. for the goal of universalization elementary education.

**Mid-Day Meal:** The National Nutrition Assistance Program for Elementary Education (NPNSPE "Nutritional Programme of Nutritional Support to Primary Education") was launched on 15 August 1995 as a centrally sponsored scheme with the aim of increasing enrollment, retention and attendance as well as improving the nutritional value in children. In the year 2001, children of every government and government aided schools need to be served mid-day meal with minimum 8 to 12 grams of protein per day and minimum 300 calories of energy under MDM. In 2002, it was expanded not only to cover the schools of government, government aided and local bodies, but also to the children falling under the Education Guarantee Scheme (EGS) and Alternative and Innovative Education (AIE) centres.

In October 2007, the scheme was expanded to cover children studying in upper primary schools in the Educationally Backward Block Development Zone and the scheme was renamed the National Program of Mid-Day Meals in Schools from Nutritional Programme of Nutritional Support to Primary Education (NPNSPE).

**Objective:**

- To Analyse the Mid-Day Meal menu set by the Government of Uttar Pradesh.
- To find out the nutrition intake of mid-day meal menu set by the Government of Uttar Pradesh.
- To find the amount of nutrients in diets to be distributed in schools.
- Make a weekly comparison between nutritional status of the prescribed Meal and distributed meal in a schools.

I. **Population:** The researcher had selected the primary school of Basic Siksha Parishad of Uttar Pradesh in the districts of Pilibhit and Bareilly. These schools teach from class 1<sup>st</sup> to class 5<sup>th</sup> in urban and rural areas.

**Sample:** The researcher has randomly selected 20 schools in the 3-3 blocks of rural and 1-1 urban area of Pilibhit and Bareilly districts. Information received from the sample through survey and interview. Sample consists of students and cooks (Rasoia).

**Result and discussion:**

**Table 1**  
**Mid-Day Deal menu set by the Government of Uttar Pradesh.**

Day	New menu	Types of food items	Deeside food material for 100 children (for primary level)
Monday	Roti+vegetable, in which soybean or lentils bari are used and fresh seasonal fruits	Wheat bread/Roti with lentils / soybean Bari (use of seasonal vegetables) and fresh seasonal fruits	Wheat Flour 10 kg, soybean or lentils Bari 1 kg and vegetable 5 kg, Oil / Ghee 500ml.
Tuesday	Chawal – chawal	Chawal evm daal(chana/arhar/ other daal	Pulses 02 kg, rice 10 kg, Oil / ghee 500ml.
Wednesday	Taheri, hot and boiled sweet milk	Rice and Seasonal Vegetable Mixed in Tehri, boiled and sweet Milk(150ml) respectively	Rice 10kg., seasonal vegetable 5kg., oil/ghee 500,l., 15liter milk
Thursday	Roti-daal	Wheat roti and daal(gram/tour/other)	Wheat flour 10kg., daal 2kg., oli/ghee 500ml.
Friday	Taheri with soyabeen bari	Rice and seasonal vegetables with soyaben bari	Rice 10kg.,seasonal vegetables 5kg.,soyaben ki bari 1kg., oil/ghee 500ml.
Saturday	Rice and Vegetable with soyabeen bari	Rice evm soyabeen bari with seasonal vegetables and spices	Rice 10kg.,seasonal vegetables 5kg.,soyaben ki bari 1kg., oil/ghee 500ml

\*source upmdm.org and translated in English by researcher.

The above table revealed the mid-day meal menu prescribed by Govt. of Uttar-Pradesh which contains 8 to 12 grams of Protein per day and minimum 300 Calorie portions of energy. On Monday, students should get wheat flour bread and pulses or soybean Bari in Mid-Day-Meal along with seasonal fruit. On Tuesday, there should be pulses and rice. The quantity of pulses 1kg. Should be distributed to 100 students. Taheri and boiled sweet milk should be distributed in mid-day meal on Wednesday. The 100ml of milk should be distributed per student. Seasonal vegetable should also be used in Tehri. The mid-day meal menu has been determined to serve roti and dal for students in the mid-day meal on Thursday. The menu that is distributed on Wednesday repeated again on Friday, but the difference between the menus on both days is that the Taheri distributed on Friday using soybean meal along with seasonal vegetables but on Wednesday Taheri is distributed without soybean Bari but with seasonal vegetables. On Saturday, rice and separate seasonal

vegetables to be made with soya bean Bari to enhance Protein, Vitamins, and minerals. In the above menu, rice and wheat flour should be used 100 grams per student, pulses quantity 10 grams per student, soya bean

days	Dishes	food ingredient-s	obtained nutrients					energy
			Quantity	Protein	Calcium	Iron	Carbohydrate	
Monday	Roti and vegetable, (in which soybean or lentils bari are used and fresh seasonal fruits)	1.wheat flour	100gm	12gm	15mg	.90mg	00	361
		2.Soybean Bari	10gm	10.4gm	7gm	0000	6.6gm	69
		3.mustard oil	-	-	-	-	-	44
		4.(seasonal vegetables)	81gm	.9gm	4.05mg	.21mg	19gm	72
		Banana						
		Apple	100gm	.3gm	6mg	.12mg	14gm	52
		Orange	100gm	.7gm	11mg	.20mg	10gm	45
	Guava	100 gm	2.6 gm	18mg	.,26 mg	14gm	68	
Tuesday	Chawal aur daal (tur/masoor/ / chna /other)	Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.lentils (tur )	20gm	2.3gm	8.6mg	22mg	4.7gm	24
		3. mustard oil	5gm	-	-	-	-	44
Wednesday	Taheri, hot and boiled sweet milk	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.Potato	50gm	1.45gm	22.5mg	3.035mg	8.5gm	39
		3.tomato	15gm	.01gm	1.10mg	.07mg	.4gm	1.8
		4.green pea	15gm	3.5gm	6.90mg	.71mg	9.2gm	55
		5.mustard oil	5ml	-	-	-	-	44
		6.milk	150ml	5.7gm	253.5mg	.72mg	7.8gm	145.5
Thursday	Roti and daal	1.wheat flour	100gm	12gm	15mg	.90mg	00000000	361
		2.masor lantils	20gm	2gm	-	.6mg	4gm	22
		3.mustard oil	5gm	-	-	-	-	44
Friday	Taheri	1.rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.soyabean	10gm	10.4gm	7gm	0000	6.6gm	69
		3. potato	25gm	.755gm	11.25mg	1.51mg	4.25gm	20
		4.tomato	15gm	.01gm	1.10mg	.07mg	.4gm	1.8
		3. mustard oil	5gm	-	-	-	-	44
Saturday	Chawal aur vegitable with soyaben Bari	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2. Soyabean Bari	10gm	10.4gm	7gm	0000	6.6gm	69
		2.Potato	50gm	1.45gm	22.5mg	3.035mg	8.5gm	39
		3.Tomato	15gm	.01gm	1.10mg	.07mg	.4gm	1.8
		3. Mustard oil	5gm	-	-	-	-	44

20 grams per student and oil 5ml.

**Table2: Nutritional status of Mid-Day Meal menu set by the Government of Uttar Pradesh**

The above table shows the nutritional value of the various food items used in the Mid Day Meal. MDM must have Wheat Roti and seasonal vegetable menu in Monday's lunch. Which contains 22.9gm. of Protein and 546 k calories of energy and some minerals and vitamins. On Tuesday, the student will get 4.6gm. of Protein and 180 k. calories of energy from the Mid Day Meal. Whereas, on Wednesday and Thursday respectively, 12.96gm. and 14gm. of Protein and 251.8 and 427k. calories will be received on these days by the Mid Day Meal.

Students will get 13.46gm. of Protein and 245k. calories from the Mid Day Meal prepared in the school on Friday. On this day Tehri is made by adding seasonal vegetables. On Saturday, students will get 14.16gm. of Protein and 266k. calories from Mid Day Meal at school.

After above discussion we can say that Mid Day Meal fulfil 12-15gm. of daily protein requirement for children. This food also fulfils some requirement of vitamins and minerals but its depend on how much quantity of food was distributed and what type of cooking method was used for food preparation.

**Table 3  
Nutritional status of distributed Mid-Day Meal daily in schools.**

days	Dishes	food ingredients	obtained nutrients					
			quantity	Protein	Calcium	Iron	carbohydrate	energy
Monday	Chawal and vegetable with seasonal fruit	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.Soya bean Bari	5 gm	10.4gm	7gm	0000	6.6gm	69
		3. potato	25 gm	.72 gm	11.25mg	1.51mg	4.25gm	39
		4. mustard Oil	2.5ml.	-	-	-	-	22
		5.seasonal fruit Banana	81gm	.9gm	4.05mg	.21mg	19gm	72
		apple	100gm	.3gm	6mg	.12mg	14gm	52
		orange	100gm	.7gm	11mg	.20mg	10gm	45
		Guava	100 gm	2.6 gm	18mg	.,26 mg	14gm	68
Tuesday	Chawal and dall	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2. tur lentils	10gm	1.15gm	4.3mg	11mg	2.35gm	12
		3.mustard oil	2.5ml	-----	-----	-----	-----	22
Wednesday	Taheri , hot and boiled sweet milk	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.Potato	25 gm	.72 gm	11.25mg	1.51mg	4.25gm	39
		3.Tomato	10gm	.06gm	.73mg	.07mg	.04gm	1.2
		4.Mustard Oil	5gm	-	-	-	-	22
		5.Milk	100ml.	3.8gm	169mg	.48mg	5.2gm	97
Thursday	Chawal aur daal	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2. Masur Lantis	10gm	1gm	-	.3mg	2gm	11

		3. Mustard oil	2.5ml.	–	–	–	–	22
Friday	Taheri with soyaben Bari	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.Soyabean bari	5 gm	10.4gm	7gm	0000	6.6gm	69
		3.Potato	25 gm	.72 gm	11.25mg	1.51mg	4.25gm	39
		4. mustard oil	2.5ml.	–	–	–	–	44
Saturday	Chawal and vegetable with soyabean Bari	1.Rice	100gm	2.3gm	10mg	.53mg	24gm	112
		2.Soyabean Bari	5 gm	10.4gm	7gm	0000	6.6gm	69
		3. potato	25 gm	.72 gm	11.25mg	1.51mg	4.25gm	39
		4. Mustard Oil	2.5ml.	–	–	–	–	22

The above table shows the Mid-Day Meal distributed daily in the school. It is clear from Table 2 and Table 3 that the first difference between the menu set by the government and the menu to be distributed in the school is the quantity of food. It was found that quantity of food was smaller than prescribed by the government. The second difference is in the type of food items. For example, there should be seasonal vegetables and fruits on Monday. Seasonal vegetables mixed with lentil or Soybean ‘Bari’ and Roti But in most of the schools, neither Roti nor seasonal vegetables are distributed, Only soybean Bari is made only with potato and served in very small quantity . 50gm. vegetable + 10gm. of soya bean or lentils Bari per student is prescribed to be distributed. But as per resulting very small quantity of soybean Bari is mixed with 20 to 25 grams of vegetable per student.

Fruits are distributed every Monday in a week and on last Thursday of the month, where the quantity of fruits in the menu is not specified as per student. On asking the students in school, response of them only one banana or one guava is distribute. Sometimes quality of fruits is very much inferior. In some schools fruits and milk are not even distributed.

Boiled sweet milk is distributed along with Tehri on Wednesday. The amount of milk is set in the menu as 100 ml. Per student. But the amount of milk to be distributed is 50 ml. per student. Where the ratio of milk is less which students do not like to drink. In some schools, milk is not distributed on any day.

Mustard or refined oil is used to prepare the mid-day meal, whose quantity is set in the menu as 500ml. per 100 students i.e. 5ml. per student, but in reality oil used hardly as 2ml per student. It is proved from the above table that the Mid Day Meal distributed in the school is neither made according to the prescribed menu, nor students are not getting proper amount of nutrients from their diets. The objectives of the Mid Day Meal fulfil but nutritional requirement is not achieved.

**Table 4.**

**Weekly comparison between nutritional status of the prescribed Meal and distributed meal in a government primary schools.**

Serial No.	Nutrients	Nutritional value of prescribed meal	Nutritional value of distributed meal
1	Protein	66.9gm	54.89gm
2	Calcium	425.8mg	301.03mg
3	Iron	35.42mg	21.07mg
4	Carbohydrate	161.8gm	170.39gm
5	Total energy in a week	1780.9kcal.	1298.2kcal.

From the observation of table 4 it reveals that distributed MDM is less nutritious in the comparison of prescribed Mid Day Meal. From distributed Mid Day Meal child gets 54.89gm. protein per week where as requirement of Protein during age 5 to 11 years is 120gm. to 239gm. per week. Calcium is essential in helping to build a child healthy bones and teeth. The requirement of calcium during this age is 600mg. to 1000mg. per day while children get only 301.03mg. calcium from distributed MDM in a week. Just like that child gets only 21.07mg. Iron per week while requirement of calcium during in this age is 13mg. to 21 mg. per day. Iron is necessary for a child to build healthy blood that carries oxygen to cell all over the body so foods that contain high levels of iron include. Child come in different size and each child's body burns energy at different rates, so there is a recommended range for child between 5 to 11 years old 1600 to 2200 kcal. per day. 45 to 65 percent of daily calories should come from carbohydrates. child get 170.39gm. Carbohydrate per week where as requirement of carbohydrate during age of 5-11 years is 70-80gm. per day.

At last we can say Childs do not get required nutrients and minerals and vitamins from the distributed Mid Day Meal in school.

**Conclusion:** of A comparison of the nutritional status of the mid day meal between the prescribed and distributed meal. Table 2 and table3 revealed that distributed meal is less nutritious than the prescribed meal. While prescribed MDM menu not also full fill the required nutrition. The objective of the MDM was to give boost to universalization of primary education and to impact of the nutrition of students in primary classes (**Laxmaiah A, Sarma KV, Rao MV, et al 1999**). The MDM scheme has been revised in 2004 and as per a Supreme court directives, it envisages provision of cooked, nutritious MDM to primary and secondary school children importantly, it mentions about setting up of an appropriate mechanism for quality checks (**Sankhala A, Sankhala AK, Bhatnagar B, Singh2004**).

**Nazni P and Abdul Q. L(2017)** in his study a comparative study on mid-day meal and non-mid-day meal beneficiaries of Budgam district, conclude 5 MDM primary school and 62 children. A self-constructed questionnaire for an individual child was framed to get the anthropometric measurements and found MDM does not have a very positive impact on the nutritional status of the children when compared to NMDM program. The quantity and the quality of the MDM supplements need to be further improved to fill the nutrient gaps.

**Shariff Z M et. al(2015)** investigated on nutritional status of primary school children from low income households in kuala-lumpur and found that with increasing age, stunting is associated with improved weight-for-height or that the children's weights have been adapted to their short statures. In conclusion, results demonstrate a high prevalence of underweight, stunting and wasting and an increasing prevalence of overweight among these low-income school children. Efforts recommended to address health and nutrition problems among school children should include health and nutrition monitoring.

According to Article 47 of the Constitution of India, the state will consider as their primary duty of raising the nutritional level and standard of living and improving public health. The 17 Sustainable Development Goals were proposed at the 2012 Rio + 20 conferences. End of hunger, food security and better nutrition have been placed on serial number 2 of these 17 goals. In the Global Hunger Index 2020, India is ranked 94<sup>th</sup> in the list of 117 countries while its neighbouring countries like Bangladesh, Pakistan and Nepal are well placed above India. India's position in nutrition and health is worrying. Has over one third of the world's malnourished children are in India. India second largest country in the world, But according to the population, the resources are limited. Even in the above subject circumstances, mid day meal can prove to be a good program to meet nutritional and health related needs only If this program is not seen as an income opportunity. The mid day meal program is currently the largest meal program in the world. An it may prove to be a rightness and excellent program to achieve these objectives and goals.

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