

## Status of Implementation of Mid-Day Meal Program in Meerut: A Cross Sectional Study

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### **Abstract:**

**Introduction:** Mid - Day Meal scheme was started as a centrally sponsored scheme on 15<sup>th</sup> August, 1995 with the aim of universalization of primary education by increasing enrolment, retention and attendance and simultaneously impact on Nutrition of Students in Primary Classes. From 2006 the food being served has been enriched by raising its 450 calories and 12grams protein in primary schools. Food Safety encompasses selection, handling, preparation and storage of food in ways that prevent food borne illness and contamination.

**Material and Methods:** A cross sectional study was conducted among 79 urban and rural primary schools of Meerut, the data was collected on a pre tested and pre designed questionnaire. Data was assembled and analyzed on Epi info version 3.0.7.

**Results:** Mid-Day Meal programme is under implementation in all 79 urban and rural schools of Meerut since 2006, the meal is supplied by NGOs in Urban Schools while it is cooked in premises in rural schools. Though there is presence of proper kitchen in all rural schools the food is prepared in kitchen by only 16 schools of 39 rural schools. The hygiene of raw food storage, cooked food storage and disposal of waste is found to be satisfactory in both urban and rural schools, while the practice of proper hand washing, clean utensils to eat, and cleanliness of place of dining found to be significantly better in urban schools. The overall impact of the program on attendance, enrolment and retention was more in rural areas.

**Conclusion:** Even after lapse of more than 20 years since the launch of MDM Scheme, till date the implementation of scheme yet to meet the requirements as per guidelines. Though the benefit is more in rural areas still it's lagging behind the Urban areas in implementation.

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### **I. Introduction**

Mid-day meal programme is the popular name for the school meal programme in India. It involves provision of lunch/snacks/meal free of cost to school children on school working days.<sup>(1)</sup>

Mid-day meal scheme was started as a centrally sponsored scheme on 15<sup>th</sup> August, 1995 with the aim of universalization of primary education by increasing enrolment, retention and attendance and simultaneously impact on Nutrition of Students in Primary Classes.<sup>(2)</sup>

On 28th August the Hon'ble Supreme Court passed the order to the State Government/Union Territories to implement the Mid-day meal scheme by providing every child in every Government and Government aided Primary schools with a prepared Mid-day meal with minimum content of 300 calories of energy and 8-12 grams of protein each day of school for a minimum of 200 days.<sup>(2)</sup>

From 1st September 2004 cooked meal is being served to the beneficiaries. From 2006 the food being served has been enriched by raising its 450 calories and 12grams protein in primary schools. In upper Primary schools, it is 700 calories and 20 grams of protein<sup>(3)</sup>

Food Safety encompasses selection, handling, preparation and storage of food in ways that prevent food borne illness and contamination. This require a number of routines that should be followed to avoid potentially severe health hazards. Due to lack in these food safety measures during implementation of Mid-day meal, we have seen many health related problems in various parts of our country.<sup>(3)</sup>

Keeping this in mind this short study is conducted to see the present status of implementation of mid-day meal scheme as per guidelines.

### **II. Material And Methods**

A Cross Sectional Study was conducted from June 2015 to September 2015, among the primary schools in Rural and Urban Areas of Meerut.

The list of primary schools of Meerut was obtained from Basic Shiksha Adhikari (BSA) office, Meerut. A total of 400 schools were found in Rural and Urban Areas.

Since the Mid-day meal Scheme is Universal, so with the reference to the article by CSAS (Centric Systematic Area Sampling) <sup>(4)</sup>, total of 79 schools were selected for study. First School selected randomly which was number 3 and sampling interval as 5 ( $400/79 = \text{approx. } 5$ ). By using Systematic Random Sampling, 3<sup>rd</sup> School was taken as 1<sup>st</sup> and then every 5<sup>th</sup> school was chosen.

Of these 79 schools, 40 were from Urban Areas and rest from rural areas.

The Data was collected on a Pre Tested and Pre Designed Questionnaire which was prepared on the Guidelines of food Safety and Hygiene for School Level Kitchens under MDM Scheme given by Ministry of Human Resource and Development (HRD).<sup>(3)</sup>

The Data was collected by Visiting to Schools and information Gathered from the Head Master by a Single observer.

The Collected data was analyzed using Epi Info Software version 3.0.7<sup>(5)</sup>

### **III. Results**

Mid-Day Meal Scheme is one of the largest centrally funded scheme which provide free one-timemeal to government school and government aided school children.

In total of 79 Primary schools selected for the study, the scheme has been under implementation since 2006 among all schools, though the program was launched in Uttar Pradesh, way back in 1995.

Among the 40 schools in urban Meerut, the cooked meal is being supplied by various NGOs according to the area. The meal is prepared in the centralized kitchen under the NGO and supplied to the associated schools by van or auto. Usually the meal is supplied by 10 am and is consumed by children by 10.30 am. The left over meal is taken back by the same van or auto before the school gets closed.

Among the rest 39 schools in rural Meerut, the meal is prepared within the school premises by the government employed cooks and their helpers, under the guidance of headmaster and other teachers. The meal is usually prepared by 10 or 10.30 and is immediately distributed to the children, served by teachers and children.

Since meal is prepared only in rural schools, the data regarding kitchen and fuel used were collected and analyzed of these schools.

Of the 39 Schools preparing food in premises, it was found that a separate room for kitchen has been allotted in each school but the food is prepared in that kitchen in only 16 (41%) of schools. Others use to prepare the food in open. (TABLE 1)

The ventilation and lighting of the kitchen in most of the schools 82% was poor, and in 18% the floor was not cemented. No proper washing facility for utensils and raw vegetables was present in any school. (TABLE 1)

56% schools in rural area preparing meal, were using wood as source of fuel, producing a large amount of smoke in premises, while the rest 44% were using LPG for preparing meals.(TABLE 1)

Separate room to store raw food was present in only 23 % schools among the 39 schools. Rest schools were storing the raw food either at Pradhan's House or at the Head Masters House from where daily the raw food is brought to the school either by the helpers or by the cook. (TABLE 1)

The cooked food was stored in dry and clean places, and cooked in clean utensils with a lid. This is practiced in most of the schools while 5% schools were not properly storing the cooked food. (TABLE 1)

On enquiring about type of utensils used, all headmasters and teachers stated that steel plates were used. The students were asked to bring the plates from home, in order to allow them to take the left over meal to home. The utensils children use were asked to be brought clean and again cleaned in the school under guidance of headmaster or teacher. Though this was practiced in only 67% schools rest schools do not bother whether the utensils children brought are clean or not. (TABLE 1)

With respect to cleanliness and hygiene, it was maintained at the place where the food used to be prepared but some schools lack proper lighting and ventilation in kitchen, some were preparing food in open and not having a proper place to wash the cooking utensils.

The place where meal was served is clean in most schools 64 (81%), while in rest 15 (19%) schools either the place is not clean or the street dogs enter the premises. (TABLE 2)

Presence of rodents, lizards, house fly in the places where food is cooked, stored or served can invite many diseases. When the kitchen, place of storing raw and cooked food and place of serving food was seen, the

condition was found unhygienic in 34 (43%) schools, where there was presence of either rodents, lizards or house fly was there at the time of study. ( $P < 0.05$ ). (TABLE 2)

Proper disposal and storage of waste is essential in order to maintain hygiene. The waste was collected in covered areas in most schools 52 (66%), while in rest 27 (34%) schools it is collected in open dustbins. (TABLE 2)

The refuse thus collected is disposed daily in 69 (87%) schools while it is disposed weekly in rest 10 schools (13%). (TABLE 2)

On being asked about the hand washing, whether it is practiced regularly or not, the head master and teachers ensured that all children do practice hand washing properly daily. However, in 20 (25%) schools it is not practiced even there was no availability of soap. Practice of hand washing was found to be significantly more in urban schools than in rural. (TABLE 2)

In order to meet the calorie requirements of the children as per the scheme, the government has prepared the daily menu and quantity of food to be provided to each children, but this menu is not being followed, in 13 (17%) schools, where the same menu is repeated more than twice a week. Regarding quantity, the schools provide the food as per the child's requirement.

Of the total 79 schools, 66 (84%) schools are following the proper menu. The schools following the proper menu are more in Urban areas 37 (93%) as compared to schools in Rural areas 29 (74%), and this difference is found to be statistically significant ( $X^2 = 4.73$ ,  $df = 1$ ,  $p < 0.05$ ). The schools providing proper menu are found to provide the recommended calorie and proteins to the children.

When asked about effectiveness of Mid-day meal, improvement in attendance, retention and enrolment of children due to meal was found among 32(41%) schools, rest all said no significant impact it brought. The impact was found more in rural areas 22 (56%) compared to urban areas, 10 (25%) and it was found to be statistically significant ( $X^2 = 6.83$ ,  $df = 1$ ,  $p < 0.05$ ).

The recommended remuneration given is Rs 3.76 / child / day which is very less as per many Headmasters and teachers, insufficient to provide all things to the child.

The second problem was delay in provision of the said amount for the children sometimes makes it tough for the school to provide the meal.

Characteristic	Urban (N = 40)	Rural (N = 39)	Total	Statistical Analysis
Kitchen	Proper Kitchen	---	16 (41%)	---
	Ventilation & Lighting	---	07 / 16 (44%)	---
	Type Of Fuel		Lpg 17 (44%) Wood 22 (56%)	---
Proper Storage Of Raw Food	---	09 (23%)	09	---
Proper Storage Of Cooked Food	35 (88%)	28 (72%)	63 (80%)	$X^2 = 3.02$ , $Df = 1$ , $P = 0.082$
Presence Of Clean Utensil	27 (68%)	26 (67%)	53 (67%)	$X^2 = 0.621$ , $Df = 1$ , $P = 0.937$

Characteristic	Urban (N = 40)	Rural (N = 39)	Total	Statistical Analysis
Presence Of Clean Dining Place	33 (83%)	31 (79%)	64 (81%)	$X^2 = 0.11$ , $Df = 1$ , $P = 0.95$
Absence Of Rodents	29 (73%)	16 (41%)	45 (57%)	$X^2 = 7.98$ , $Df = 1$ , $P < 0.05$
Proper Disposal Of Waste Material	29 (73%)	23 (59%)	52 (66%)	$X^2 = 1.61$ , $Df = 1$ , $P = 0.205$
Proper Hand Washing Practice	35 (88%)	24 (62%)	59 (75%)	$X^2 = 7.04$ , $Df = 1$ , $P = 0.008$

#### IV. Discussion

The study was conducted among rural and urban government primary schools of Meerut. Overall results shown in this study showed that practice of food safety and hygiene in rural and urban schools of Meerut

is poor. The condition is comparatively better in Urban Primary Schools, though the maximum impact of mid-day meal programme is in rural areas.

In this study we found the food is cooked in kitchen in rural schools while it is supplied by different private agencies in urban schools. Though there is provision of separate kitchen in all primary schools in rural set ups, but only 41% schools are preparing food in provided rooms. Most of the schools are using wood as the source of fuel. The condition is pretty much similar to the findings of, final Report of State Council for Educational Research & Training (SCERT), Chhattisgarh<sup>(6)</sup>, Sen et al.<sup>(7)</sup>

The overall hygiene for storage of raw food is very poor, merely 23% schools in rural areas have proper storage place with proper covered areas away from rodents and insects. While most of the schools have proper storage place for cooked food and is maintained in dry and covered places and food is served hot. Similar to the findings by Kaushal et al<sup>(8)</sup>, but the findings differ from the findings by Savita et al<sup>(9)</sup>, Wizarat et al<sup>(10)</sup>

The overall hygiene of the utensils, handwashing practice, absence of rodents in school premises and clean place for dining were also not satisfactory as most of the schools in rural areas were not near to meet the standards while the condition was significantly better in urban schools.

There is positive impact on enrolment, retention and attendance in the rural schools more than in the urban areas. Though the overall implementation is poor in rural areas similar to findings reported by Bhargava et al<sup>(11)</sup>

## V. Conclusion

The Mid-day meal Programme in Meerut is having a positive impact on education through increasing enrolment, retention and attendance. The meal is drawing the children to school particularly those from poor families. Our visits to the schools suggested that the meal is a great highlight of the school day and the children genuinely welcome it.

However, the study team observed that despite of having a proper kitchen shed the food is prepared in open using wood as the source of fuel. The hygiene of utensils, hand washing, storage of cooked and raw food, presence of rodents and the place of dining is still questionable!

Even after lapse of more than 20 years since the launch of MDM scheme till date the implementation of the scheme is yet to meet the requirements as per the guidelines. Though the impact of scheme is more in rural areas but its lagging behind in urban areas.

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