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Original Research Article

An Evaluation about the Effectiveness of Mid Day Meal Scheme to Reduce Malnutrition: A Comparative Study

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ABSTRACT

In India, during the mid-nineties the Union Government had initiated the Mid-Day Meal schemes in schools to promote primary education on one hand, and to reduce malnutrition on the other. Malnutrition is one of a major public health concern affecting a significant number of school children influencing their health, growth and development and school academic performance. The objective of this study was to evaluate the effectiveness of the mid day meal to reducemalnutrition.MDM and non MDM schools are selected by cluster random sampling method. Results show that the highest prevalence of severe under nutrition was found among boys (26.7%). Similarly highest prevalence of severe stunting was more among non MDM school boys (41.3%) followed by non MDM school girls (29.3%). It was concluded from the present study that mid day meal scheme has helped in promoting children towards better nutritional status but mid-day meal scheme certainly has much to contribute to the well-being and future of the children.

Key Words: Malnutrition, Underweight, Stunting, Thinness, Mid day Meal.

INTRODUCTION

Nutritional status is the condition of health of an individual as influenced by nutrient intake and utilization in the body. Malnutrition is major public health problem in developing countries. Freedom from hunger and malnutrition is a basic human right and their alleviation is fundamental prerequisite for human and national development. Usually referred to as silent emergency, it has devastating effects on children, society and future humankind.

Children are the wealth of any nation as they constitute one of the important segments of the population. Children in the age group of 6-14 years are often considered as school age. One fifth of the population in every country constitutes school age children (6-14 yrs.). In India, approximately 19% (190 million) of the growing population comprises school-aged children. [1]

There are concerted efforts to provide care to the under six year old children through various national maternal and child health programmes, the 5-16 years age group remains a neglected lot. Most important fact is that children of this age group are on the threshold of adulthood. Contrary to conventional wisdom, nutritional status does not improve with age. The extra demands on school-age children (to perform chores, for example, or walk long distances to school) create a need for energy that is much greater than that of younger children. Although the World Bank has included school health as one component of its essential public health

package for cost effective health program, the nutrition and health of school- age children in the developing world has received a little attention. [2] Malnutrition is associated with about half of all child deaths worldwide. Malnourished children have lowered resistance to infection; they are more likely to die from common childhood ailments like diarrheal diseases and respiratory infections; and for those who survive, frequent illness saps their nutritional status, locking them into a vicious cycle of recurring sickness, faltering growth and diminished learning ability.

The National Programme of Nutritional Support to Primary Education commonly known as Mid Day Meal Scheme (MDMS) was launched in August, 1995 by the Govt. of India. The success of the Tamil Nadu's "Nutritious Meal Programme" as well as the comfortable food stock position in the country led to the formulation of the national programme. [3]

Meal Scheme had proved to be an effective means to check high dropout rates of children from economically weaker sections, while also addressing their nutritional needs. [4] The objective of Mid Day Meal scheme was to give boost to universalization of primary education and to impact the nutrition of students in primary classes. The Mid Day Meal (MDM) scheme has been revised in 2004 and as per the Supreme Court directive it envisages provision of cooked, nutritious Mid Day Meal to Government and non government primary and secondary school children with minimum content of 300 calories of energy and 8-12 gm. of protein in each serving. From 2006, the food being served has been enriched by 450 calories and 12 gm protein in primary school and in upper primary school it is 700 calories and 20 gm protein. [5]

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, anaemia, 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 anaemia due to iron and folic acid deficiency. [6] In fact, the MDM scheme implemented in Delhi in the late 'nineties was found to be wanting on many evaluation parameters. [7]A nationwide study by Planning Commission [8] also shows the MDM scheme to be wanting on several evaluation parameters. Nutritional status of children depend a great deal on the quality aspects of mid-day meals and therefore these issues need urgent attention if mid-day meal programme are to realize their full potential.

In the view of above, it is imperative to evaluate the effectiveness of the mid day meal to reduce malnutrition.

MATERIALS AND METHODS

Cluster random sampling method was used to collect sample for this study. Out of Two Tehsils and seven Community Development Blocks in Auraiya district (Uttar Pradeh) Bidhuna Tehsil and Ajeetmal Community Development block were selected randomly. Total 12 schools were selected. Three Government primary schools (with MDM scheme) and three nongovernment primary school (without MDM scheme) of same geographical area were selected randomly from rural area of Bidhuna tehsil. Similarly, from Ajeetmal block three Government primary schools (with MDM scheme) and three non government primary school (without MDM scheme) of same geographical area were selected randomly. From each school at least 25 students were studied. Hence, 12schools*25 students= 300 total students were covered for the study from rural and urban area. The methodology comprised of interview and physical examination. The information was collected on predesigned and pretested proforma.

Anthropometry and Data Analysis

WHO anthropometric classification was used for the assessment of malnutrition. Based on the age, bodyweight and height, a number of indices such as weight for-age, height-for-age and BMI-for-age have been suggested. The children are classified using three categories: 'underweight' (low weight-for-age), stunting' (low height-for-age) or 'thinning' (low BMIfor-age).

Underweight is defined as low weight-for-age and it reflects past (chronic) and present (acute) under nutrition. Children with z-scores <-2.00 are said to be underweight.

Stunting is defined as a low height-for-age for children, and it measures the past (chronic) child under nutrition. Children with z-scores < -2.00 are said to be stunted.

BMI was calculated for all the students who participated. Moreover, the WHO still favours the use of BMI in assessing the nutritional status of children. [9,10] The following formula was used to calculate BMI-

BMI = (Weight in Kilogram) / (Height in metre)^2

The unit for BMI is **Kg/m^2**

The data was finally entered into Excel2007 spreadsheets (Microsoft Corporation®, Windows) for further analysis. p value was used to determine the relation between variables.

RESULTS

Data presented in Table 1 indicates that children comprised of both boys and girls and total 300 children were covered under study. From each area 75 boys and 75 girls were observed and assessed thus 150-150 children were selected from both MDM and without MDM schools.

Table 1: classification of children surveyed

Area	Schools					
	MDM		NON MDM		Total	
	Boys	Girls	Boys	Girls	Boys	Girls
Urban	37	38	38	37	75	75
Rural	38	37	37	38	75	75
TOTAL	75	75	75	75	150	150

It is interpreted from the observation made in Fig.1 that the highest prevalence of severe undernutrition was found among boys (26.7%) of non MDM School followed by girls (21.3%) of same type of school. Boys and Girls with normal health were more in MDM School i.e. 24% and 28% respectively. The chi-square value was found to be positively significant at 5% level of significance.

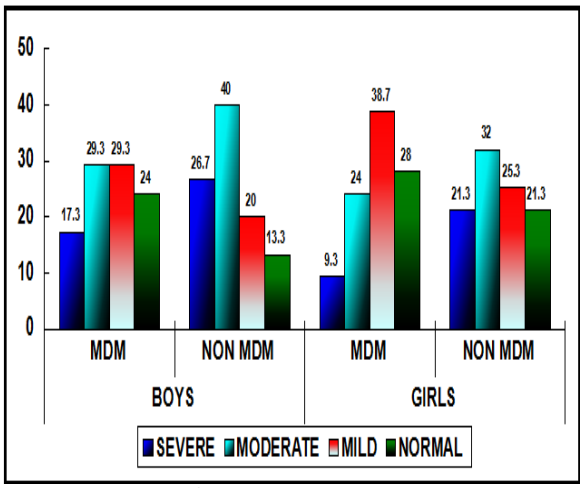

Fig.1 Prevalence of undernutrition (%) among children according to their weight for age

It was indicated by Fig.2that the highest prevalence of severe stunting was more among non MDM school boys (41.3%) followed by non MDM school girls (29.3%). The normal health status was more among boys (28%) and girls (29.3%) of MDM School while among boys and girls of non MDM School it was 8.00 and 13.3% respectively. The chi square value was found to be significant at 5% level of significance.

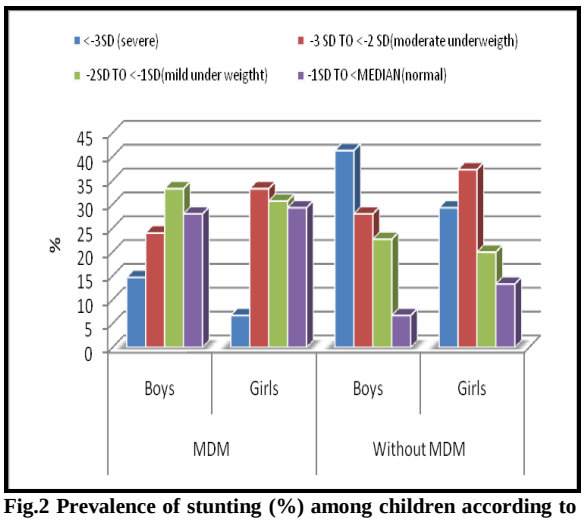

Fig.2 Prevalence of stunting (%) among children according to their height for age

It was observed (Fig.3) that in non MDM school only 50.6% of the girls are normal according to BMI for age followed by their gender counterparts (57.3%) whereas in MDM school majority of the girls are (78.7%) normal as compared to the boys (70.7%). Both gender group from MDM school were found better health status as compared to groups from non MDM school. The difference was found to be positively significant at 5% level of significance.

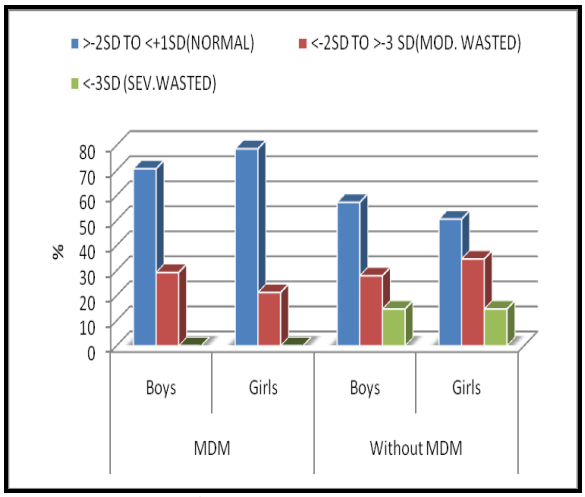

Fig.3 Prevalence of wasting/thinness (%)among children according to their BMI for age

DISCUSSION

The school age period is nutritionally significant because this is the prime time to build up body stores of nutrients in preparation for rapid growth of adolescence. [11] A study in Andhra Pradesh also showed that the nutritional component revealed better growth performance among the regular beneficiaries in the mid day meal program. [3]

Laxmaiah conducted mid-day meal evaluation in Karnataka also stated that significantly higher number of normal children (3.00%) were in mid day meal schools compared to non mid-day meal schools (1.3%). [12]

While comparing height of children, it was reported that the 50th percentile of weight, height and arm circumference of subjects corresponded with only the 5th percentile of Indian national norms. By Waterlow's classification about one-third were "stunted." [13] Another study in India reported by Comparing the average change between 2002 and 2006/07 for children who were and were not receiving a meal shows that the midday meal had a positive effect in increasing children's height-for-age. [14]

According to Agraharmost girls 7 to 9 years had grade I malnutrition. Girls 10 to 12 years had the highest incidence of moderate malnutrition. [15]

Laxmaiah reported that According to Water low's classification, the percentage of children in the three groups viz., wasted, underweight and stunted was lower in mid-day meal schools (3.60, 50.80 and 4.40% respectively) as compared to non-mid day meal schools (4.80, 54.10 and 4.60%, respectively). [12]

According to Rewal, analysis of data using three indices -weight for age, height for age, and weight for height- shows that a larger number of children (6 to 7 per cent more) fall into the category of "normal" in high-efficiency schools compared to low-programme-efficiency schools. Additionally the higher-efficiency schools had 2 to 3 per cent fewer children with third-degree malnutrition. [16]

CONCLUSION

It was concluded from the present study that mid day meal scheme has helped in promoting children towards better nutritional status but mid-day meal scheme certainly has much to contribute to the well-being and future of the children. The MDM program needs to be strengthened in its operational supervision.

As things stand, mid-day meal programmes has scope for improvement, but the way to go is forward and not backward.

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