

To Assess the Nutritional Status of the Midday meal consuming rural School Going Girls (7-10 years).

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ABSTRACT: Present study is an appreciable effort to assess the nutritional status of the Midday meal Consuming fifty School Going Girls of Kanya Gurukul Senior Secondary school. Under Socio Economic Status the subjects are categorized on the basis of family type and profession, economic and educational status of their parents. Dietary intake and food consumption pattern was studied by interview and 24 Hours recall method for three consecutive days. Nutritional assessment was done by anthropometric measurements (Height, Weight, Tricep Skin Fold (TSF) thickness) and clinical assessment methods. Mean food intake of all the food groups and mean nutrient consumption was found lower than the recommended intakes for almost all the subjects under study. Except the thiamine and vitamin C intake. Average height, weight and TSF thickness of the subjects was 130.96 cm, 24.12 kg and 7.76mm, respectively. Most of the students (94%) were vegetarian and 34 percent of the students used to skip their meals. After clinical assessment half of the students showed normal appearance whereas 8 percent had thin built and 42 percent were having sickly built. Present study concluded that in spite of the consumption of mid day meals the nutritional status of the rural school going girls under study was lower than the recommended Indian levels.

KEY WORDS: MDM, TSF, Clinical assessment, Socioeconomic status

I. INTRODUCTION

The **Mid Day Meal Scheme** is a multi-faceted programme of the Government of India that, among other things, seeks to address issues of food security, lack of nutrition and access to education on a pan nation scale.^[1] It involves provision for free lunch on working days for children in Primary and Upper Primary Classes in various schools run by the government. The primary objective of the scheme is to provide hot cooked meal to children of primary and upper primary classes.^[2] It is the world's largest school feeding programme, reaching out to about 120,000,000 children in over 1,265,000 schools and Education Guarantee Scheme (EGS) centres across the country.^[3] Its objectives include ; improving nutritional status of children, encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities, thereby increasing the enrollment, retention and attendance rates.^[3]

A World Bank (2008) report states that India has 42 percent of the world's underweight children. According to the studies by National Nutrition Monitoring Bureau (NNMB), National Institute of Nutrition (NIN) and Indian Council for Medical Research (ICMR), 58.6 percent of the children of the age group 6–9 years and 77.9 percent of the children of the age group 10-13 are underweight. If the mild under nutrition is added to underweight, this number increases to 94.1 percent and 96.4 percent respectively. 30.1 percent of all children of 10-13 age group are severely underweight. The school going age is a dynamic period of a physical growth and development along with mental, emotional and social changes. About 40% of the physical growth and 80% of mental growth is believed to take place during this age. Malnutrition contributes directly or indirectly to more than 60% of 10 million child deaths each year. The poor nutrition status of children is the outcome of trilogy, of poverty ignorance and lack of education. The nutritional status of rural girls in Haryana state is worst due to prevailing gender biasness. To decrease the incidence of malnutrition and anemia among school going children, the government of India has launched a mid-day meal programmes in primary schools. In Haryana state mid-day meal programme was launched on 15 August, 2004. The menu of mid-day meal in Haryana state is based on the locally grown and consumed food according to the local habit of children. Keeping these facts in consideration, the present study has been structured to analyze the health status of rural school going girl children and to find out the impact of mid-day meal on nutritional status of them with following objectives:

- To determine the the nutritional status of school going children.
- To study the food consumption pattern and nutrient intake of school going children.

II. MATERIALS AND METHODS

Present study was carried out on fifty school going girl children (7-10 years) of *Kanya Gurukul Senior Secondary school*, BPSMV, Khanpur Kalan.

Collection of general information:

A structured pre-tested questionnaire pertaining to age, occupation and education of the parents, family size, economic status and food preferences was used to elicit general information on these aspects.

Diet Survey:

Information on meal pattern of all the subjects was collected by following 24 hours recall method of diet survey for 3 consecutive days Based on data the amount of raw foods consumed by each individual and calculated using the formula:

$$\text{Amount of raw food consumed by individual} = \frac{\text{Total quantity of raw food used by family}}{\text{Total quantity of cooked food}} \times \text{Individual intake of cooked portion}$$

The adequacy of foods and nutrients of diet consumed was calculated and compared with requirements and recommended dietary allowances respectively.

Anthropometry:

Height, weight and Tricep Skin Fold Thickness (TSF) were recorded. The subjects were graded as per normal values and standardized tables.

Clinical assessment

Clinical examination of an individual is the least sensitive method used to evaluate individual’s nutritional status. This method of assessment is based on the recognition of certain physical signs believed to be related to inadequate nutrition which can be seen or felt in superficial epithelial tissues especially the eyes, skin or organ near the surface of body. In the present study, observation related to general appearance of child’s health, hair, eyes, skin, Appearance, were taken with the help of trained medical practitioner of Primary Health Centre of the selected villages using criteria described by Jelliffe (1966).

Statistical analysis

The data was statistically analysed with the help of percentage, mean and standard deviation, analysis and t- test.

III. RESULTS AND DISCUSSION

General information and Socio economic status of the subjects

Analysis of the questionnaire and interview data revealed that father of 46% of the school children were engaged in farming, 32% were laborers and 60% in business and only 6% were engaged in service which include driver, policemen, teacher etc. Data revealed that 36% of the school children mothers were educated up to metric level and 24% were up to graduated and postgraduate. Whereas, 18% were educated up to intermediate level. Equal respondents (50-50%) were belonging to joint and nuclear family. It was found at 36% and 34% children had two and three meal a day followed by 30% children had four meals a day. Most (94%) of the children were vegetarian and only 6% children were eggetarian. Meal was skipped by the 34% of the total children in which 14% , 6% , 8% , and 6% children skipped breakfast, lunch, evening tea and dinner , respectively. Out of total children 94% children prefer to eat outside while only 6% liked to eat at home.

Daily mean food intake of school children:

Wheat was consumed daily by all school children, about 64% of them reported the consumption of rice . Frequency of its consumption by subjects was either twice in a week, weekly or occasionally.

Among pulses legumes only half of the respondents reported intake of green gram too occasionally, black gram, kabuli chana , moth been ,lentil rajmah and cow pea were consumed occasionally by 48, 24, 36 ,76, 16 and 12 per cent of the respondents ,respectively.among the root and tubers potato and onion were consumed by all school children most of them reported its consumption daily sweet potato and colocasia were cosumed 18.3 and 62 per cent respectively raddish and carrot were reported to be consumed by all respondents , majority of the respondents consumed them weekly, followed by twice in a week.

Table 1 : Daily mean food intake of school children:

Food stuffs(gm)	RDI(ICMR,1989)	Mean food intake (n=50) (mean ± S.D.)	%RDI	't' value
Cereals	320	299.17±41.15	93.5	2.72*
Pulses	70	19.17±23.49	27.4	11.65*
Milk and milk products	250	128.33±79.74	51.3	8.21*
Fruits	50	19.17±33.84	38.3	4.90*
Roots and tubers	30	82.50±40.98	275.0	6.89*
Green leafy vegetables	100	14.17±34.59	14.2	13.36*
Other vegetables	50	54.50±42.06	109.0	N.S.
Sugar and jaggery	50	25.33±9.83	50.7	13.51*
Fats and oils	35	20.33±9.91	58.1	7.96*

*significant at 5% level

N.S. – not significant

't' value –calculated value of 't' between mean food intake and RDI

Daily mean nutrient intake of school children:

Intake of energy protein, calcium ,vitamin A, riboflavin was significantly lower then RDA .Intake of niacin and vitamin C was at per with RDA and intake of thiamin was significantly higher than RDA by going girls school children whereas the intake of energy and iron was very low i.e 79.8 and 83.7% of RDA of respectively.

Table 2: Daily mean nutrient intake of school children

Nutrient	RDA(ICMR,1989)	Mean nutrient intake(n=50)	%RDA	't' value
Energy (kcal)	1970	1573.08±240.69	79.8	8.88*
Protein (g)	57	43.89±77.0	77.0	12.35*
Calcium(g)	600	363.59±152.99	60.6	8.32*
Iron (g)	19	15.91±2.39	83.7	6.93*
Vitamin A(g)	600	234.26±200.07	39.0	9.84*
Thiamine (mg)	1.0	1.64±0.33	164.0	10.65*
Vitamin C(mg)	40	42.61±31.71	106.5	N.S.

*significant at 5% level

N.S. – not significant

't' value –calculated value of 't' between mean food intake and RDI

Evaluation of the nutritional status of Mid Day Meal taking school going girls:

Average height of school children was 130.96cm. This was the 91.7% of the reference value and was significantly lower than reference value. The mean weight of school children was 24.12 kg. it was significantly lower than reference value. Skinfold thickness of school children was 7.76mm which was 40.9% of reference value and it was significantly lower than reference value.

Table 3 : Anthropometric measurements of school going girls.

Anthropometric Parameter	Reference value	Observed value	% of Reference value	't' value
Height (cm)	142.70	130.96+7.03	91.7	8.99*
Weight (Kg)	34.90	24.12+4.92	69.1	11.79*
Tricep Skin Fold Thickness (TSF)	18.97	7.76+2.03	40.9	29.75*

*significant at 5% level

N.S. – not significant

't' value –calculated value of 't' between mean food intake and RDI

Clinical assessment of the Mid Day Meal taking school going girls:

About half of the school children had normal appearance about 8% and 42% children had thin build and sickly build.

IV. SUMMARY AND CONCLUSION

Anthropometric measurements of the school going girls of BPSMV, Khanpur Kalan was significantly lower than the reference value.many clinical symptoms of multi nutrient deficiency were clearly visible from the nutrient deficiency clinical assessment of the subjects under study. Results of the study clearly reveal the need to impart the nutrition education to the mothers of the subjects to enable them to know about low cost and nutritious sources of food in their diet so the they can help their children to consume appropriate food.The results of the present study are supports by the study of Laxmaiah *et. al.* (1999) and indicate that there was no good impact of Mid Day Meal consumption on the nutritional status of the schoolgoing girls under study.

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