

Nutritional status of early adolescent girls and Mid-Day Meal programme in middle schools: A study in Mayurbhanj district of Odisha

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ABSTRACT

Adolescence is the period of transition between childhood and adulthood. Many physical, sexual, cognitive, social and emotional changes occur in this stage. During early adolescence which lies in the age group of 11-13 years, the children often start to grow more quickly. Mid-day meal programme is the popular name for the school meal programme in India. To assess the impact of Mid-Day Meal programme on the nutritional status of early adolescent girls. A total 60 number of girl students in the group of 10-13 years were randomly selected to be the respondents of the study in the middle schools in Mayurbhanj district of Odisha. Descriptive statistics like frequency, percentage, arithmetic mean, standard deviation and gap percentage (%) were adopted to analyze the data. Anthropometric measurement (like height, weight) was used to assess the nutritional status. Height, weight and body mass index were evaluated using available data. The results indicated that, a large number of the samples (56.66%) are underweight where as 38.33% of the sample girls are normal in condition. The study also found that 3.33% are overweight and only 1.66% of the sample are obese. The children are underweight and this is the sign of severe malnutrition. So, immediate action is required to improve the nutritional status of middle school girl students.

Key words: Early adolescent girl, mid-day meal programme, nutritional status, height, weight, body mass index

INTRODUCTION

Adolescence is the period of transition between childhood and adulthood. Many physical, sexual, cognitive, social and emotional changes occur in this stage. During early adolescence which lies in the age group of 11-13 years, the children often start to grow more quickly. Mid-day meal programme is the popular name for the school meal programme in India. The national programme for nutritional support to primary education (NP-NSPE) was launched as a centrally sponsored scheme on 15th august 1995 with a view to enhance enrollment, retention, attendance and nutritional status of children. Tamil Nadu was the first state in India to introduce this scheme. The first school which had the scheme since 1925 was Sourashtra Boys Higher Secondary School, Madurai. By 2002, the scheme was implemented in all of the states under the orders of the Supreme Court of India.

The Mid-Day Meal Scheme is a school meal programme of the government of India designed to improve the nutritional status of school age children nationwide. The objective of the programme were enhancing school enrollment, student retention, improving student attendance and improving nutritional status of children.

Mid-day meal programme is the most important supplementary nutritional programme to mitigate classroom hunger. Children spend most of the time in school, so school is the second home to them to incorporate nutritional supplementation.

The socio-economic status may be defined as “a position attained by any individual within a system of hierarchical social structure.” SES has a major role to play in seeking health care services, accessibility issues, affordability costs, acceptance by beneficiaries and overall utilization of services by the people. Kuppuswamy scale was developed for assessing the SES of an urban individual. This is the most commonly used scale for determining the SES of an urban family. It took three parameters into account, namely, education, occupation, and income of the individual. The parameters were modified as education and occupation of the HOF and the income of the whole family, pooled from all the sources.

Materials and Methods

The present study was conducted in Mayurbhanj district of Odisha. In this study, we collected information from 60 children from class 6th and 7th in the age group 10-13 years from government-run-upper primary schools (Maharani Prem Kumari Girl’s High School) , which is sufficient to apply the bivariate and multivariate analysis and to come out with findings.

The specific questionnaire had been developed to understand the perspective of children regarding the food provided as a part of the Mid-day meal scheme. The questions of this schedule were asked to children of class 6th and 7th standard, which covers daily practices in food distribution, their likes and dislikes towards foods provided, personal hygiene and sanitation in the school.

In this section, anthropometric measurements (height and weight) of all the selected children were recorded. Weight was measured for children with the help of the electronic weighting machine. The height of children age was measured by using normal measuring tape in centimeter placed on plain floor.

Anthropometry is one of the most useful tools used for assessment of the nutritional status of primary school children. It is the single most universally applicable, inexpensive and non-invasive method available to assess the size, proportion and composition of human body (WHO 1995). Weight, Height and Body Mass Index (BMI) for age are three anthropometric parameters used for assessment of nutritional status in children.

Body Mass Index (BMI-for-age): BMI-for-age is used to indicate both thinness and overweight/obesity in children and non-pregnant adolescents 5–19 years of age. BMI is not a direct measurement of body fat and does not distinguish between muscle weight and body fat weight. It is a ratio of weight relative to height—calculated using the formula

$$\text{Weight in kilograms/ (Height in meters)}^2$$

Socio Economic Status: To identify the socio economic status of the respondents uses Kuppaswami Scale. Socioeconomic status (SES) is one among important indicators to evaluate the health status and nutritional status of a family.

Analysis of Data: For analysing all the raw data do coding, ranging, frequency, percentage, average height, average weight and BMI etc.

RESULTS AND DISCUSSION:

The study provides the information regarding the quantity of food served is sufficient or not. The study concluded that a large no. of respondents (83.33%) are satisfied of the quantity of food while 16.66% of the respondents are not satisfied of the quantity of food served. . The result shows 41.66% of the respondents like boiled egg. While 30% and 28.33% of the students like soybean and dalma respectively. The study also found that no student like potato curry.

The study found that maximum number of sample (58.33%) having the age between 10-11 year, 33.33 % were in 11 to 12 years and only 8.33% children are in the age between 12 to 13 years. A study was conducted by **P. Singh and M. Aggarwal, vol. 20 (2020)** conducted a research regarding this topic and find out comparatively similar result that 68.7% girls were aged between 10-11 years, 21.3% were aged between 11-12 years while 10% were more than 12 years. Majority of the respondents were Hindu (57%) and rest were from Muslim community (3%). A study was conducted by **Garget et al** concluded that majority of the children (60.5%) belonged to the lower caste (15.2%) and rest (3.5%) were from the Muslim community. Higher portion of the sample (55%) are General in category, 8.33% are OBC and

23.33% are from ST and 13.33% are from SC category. A study was conducted by **Pratichi (2004)** he found that SC category was (12.6%) and ST (19.9%). Only 35% of the respondents are having menstrual cycle and rest (65%) of the early adolescent girls are not having menstrual cycle.

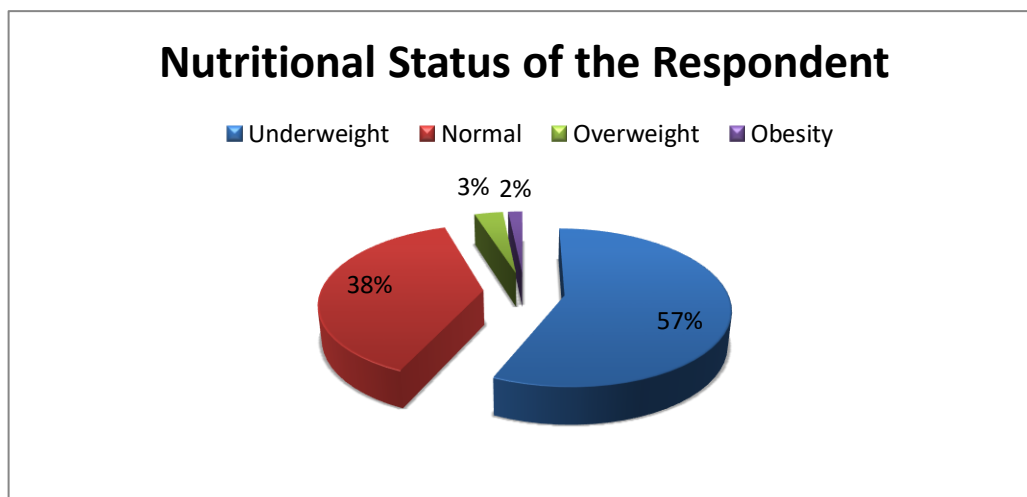
The study concluded that the highest no. of the girls belonging to the age (11-13 year) have 140- 160 cm height (53%). Again 33.33% of girls have height between 120-140 cm, 8.33% of the respondents having more than 160 cm height and 5% having between 100-120 cm height. It is evident that 38.33% children have weight between 20-30 kg, 21.66% have weight between 40-50 kg, and 21.66 % weigh between 30-40kg and only 11.66% students having above 50 kg of body weight. The data indicates a large variation of body weight among the sample.

1.1 Distribution of the school children according to nutritional status

SL. No	BMI (kg/m ²)	Status	Frequency (f)	Percentage
1	<=18.5	Underweight	34	56.66
2	<=25	Normal	23	38.33
3	<=29	Overweight	2	3.33
4	>=29	Obesity	1	1.66
5		Total	60	100

Source:WHO,2006

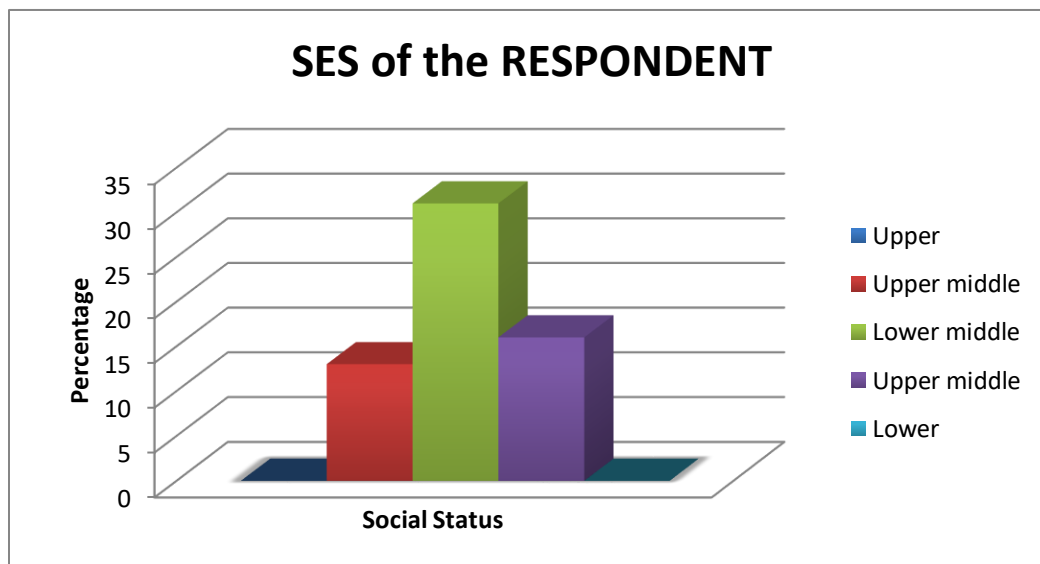
Table 1.1, shows the classification of respondents according to their nutritional status as per the classification indicated by WHO, 2006. The study found that a large number of samples (56.66%) are underweight whereas 38.33% of the early adolescents are normal in condition. The study also find that 3.33 % are overweight and only 1.66% of the sample are obese. A study was conducted by **Palaniswamy Navaneethan, et al** concluded that 83% were underweight, 16% of the student were in the normal and rest 0.39% and 0.06% were in the BMI of overweight and obese respectively.



1.2 Distribution of the respondents according Kuppuswamy SES scale

Sl. NO.	Status	Scale	Frequency (f)	Percentage (n=60)
1	Upper	26-29	0	0
2	Upper middle	16-25	13	21.66
3	Lower middle	11-15	31	51.66
4	Upper lower	5-10	16	26.66
5	Lower	<5	0	0
6		Total	60	100

From Table no. 4.5.8 it is evident that there is large no. of the respondents (51%) from lower middle class. The study also found that, 26 % of the respondents are from upper lower class and 21% of the respondents are from upper middle class. The research also found that no respondents are from upper class as well as lower class (0%). The major finding of the study indicated that more than half of the girls belong to the families having lower middle socio economic status. A study was conducted by



CONCLUSION:

The present study was conducted with the objective to assess the demographic and nutritional status of middle school going children in Mayurbhanj district of Odisha. The anthropometry measurement revealed that height and weight of the middle school children are less than the recommended standard weight and height of WHO, 2006. The nutritional status of the

children was very poor as 56.66% of the respondents are in the category of under nutrition. There was greater prevalence of malnutrition among the adolescent girls.

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