

Food gap and prevalence of undernutrition among rural and urban adolescent girls in Chapra (Saran) district, Bihar

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The Present investigation has been carried out in Chapra (Saran), district, Bihar. A descriptive research design was adopted. Out of the total sample (300) rural and urban adolescent girls comprised of 68 and 62, respectively. The respondent girls were selected randomly using random number table. Dietary information was gathered by using 24 hours recall method and dietary survey was executed for three consecutive days. Under nutrition was assessed in terms of BMI (Body Mass Index). The present study showed that average food intake of rural and urban girls was less than recommended dietary allowances (RDA). However, cereals and roots and tubers consumption was higher than RDA. Again, average intake of G.L.V., fruits, milk and milk products was even less than 50 per cent of the recommended dietary allowances. Further, data pertaining to under nutrition showed that more than 60 per cent of the rural as well as urban adolescent girls were undernourished. There was no case of obese and overweight found either in rural or urban sample.

Key Words : Nutritional status, BMI, Average food intake, RDA, Under nutrition

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INTRODUCTION

WHO's definition of adolescents as those between the age of 10-19 years is the definition that was adopted at the South-Asia conference on adolescents in 1998, and followed by the most other UN Organizations. Adolescent is an important period of individual's life. This period is characterized by an exceptionally rapid rate of growth which exceeds only during foetal life and early infancy (Medhi *et al.*, 2007). Up to 45% of skeletal growth takes place and 15% to 25% of adult height is achieved during the adolescent growth spurt and up to 37% of total bone mass may be accumulated (Dasgupta *et al.*, 2010).

Thus during the period of adolescent nutrient needs are the greatest. Proper food and good nutrition are essential for survival, physical growth, mental development performance

and productivity, health and well being of adolescents, but almost half of the adolescents of both sexes are not getting even 70% of their daily requirement of energy, quarter of them are getting less than 70% of their RDA of protein (Dasgupta *et al.*, 2010). Poor nutrition among adolescents resulting in short stature and low lean future adverse health outcomes including poor reproductive output among women (Medhi *et al.*, 2007).

Adolescents represent around 20% of the global world's population and around 84% of them are found in developing countries. In India, they constituted around 22.8% of the population as on 1st March'2000. But, unfortunately, there is a dearth of data on the nutritional status of adolescents despite of the fact that adolescents' nutritional problems represent a heavy health.

So, keeping in view the importance of adolescence in individual's life the present study has been carried out with two objectives namely :

-To assess the average food intake of rural and urban adolescent girls and its comparison with RDA.

-To measure the prevalence of under nutrition among the rural and urban adolescent girls under the study area.

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METHODOLOGY

The present study has been carried out in chapra (Saran) district, Bihar. A 'descriptive research design' was used for conducting the study. After selecting the district, one high school from rural and another from urban area has been selected randomly for collecting the sample. 150 adolescent boys and girls aged between 12-17 years were selected from each school. Out of the total sample, adolescent girls comprised of 68 from rural and 62 from urban area. Dietary information has been gathered by 24 hours recall method. The data were collected for three consecutive days. Prevalence of undernutrition was measured in terms of Body Mass Index (BMI).

$$\text{Percentage adequacy} = \frac{\text{Mean intake}}{\text{RDA}} \times 100$$

$$\text{Body mass index} = \frac{\text{Body weight (kg)}}{\text{Height (m}^2\text{)}}$$

$$\text{Individual food in terms of raw quality (g)} = \frac{\text{Total raw food used in preparation}}{\text{Total cooked food prepared}} \times \text{Individual intake}$$

OBSERVATIONS AND ASSESSMENT

It may be documented from Table 1 that percentage adequacy attained by rural girls were 104.43, 61.77, 29.63, 146.03, 91.03, 25.43, 18.97, 47.68 and 55.93 for cereals, pulses, G.L.V., roots and tubers, other vegetables, fruits, milk and milk products, fats and oils and sugar and Jaggery. While in case of urban girls percentage adequacy attained were 97.19, 57.53, 24.19, 131.69, 72.42, 28.39, 18.08, 59.48 and 62.90 for cereals, pulses, G.L.V., roots and tubers, others, fruits, milk and milk products, fats and oils and sugar and Jaggery. Thus, it may be depicted from the above table that percentage adequacy attained by rural adolescent girls was more than 90 in case of

Table 1. Average food intake of rural (R) and urban (U) adolescent girls and comparison with terms of percentage adequacy

Food group	Average food intake (g)	RDA	Percentage adequacy
Cereals (R)	313.31	300	104.43
(U)	291.59		97.19
Pulses (R)	37.06	60	61.77
(U)	34.52		57.53
G.L.V. (R)	29.63	100	29.63
(U)	24.19		24.19
Roots (R)	146.03	100	146.03
and Tubers (U)	131.69		131.69
Others (R)	91.03	100	91.03
(U)	72.42		72.42
Fruits (R)	25.43	100	25.43
(U)	28.39		28.39
Milk and (R)	94.85 (ml)	500 (ml)	18.97
milk products (U)	90.40 (ml)		18.08
Fats and Oils (R)	11.92	25	47.68
(U)	14.87		59.48
Sugar and (R)	16.57	30	55.93
Jaggery (U)	18.87		62.90

* ICMR, 1999

Table 2. Prevalence of under nutrition among rural and urban adolescent girls

Degree of under nutrition	Rural		Urban	
	No. of adolescents	Percentage	No. of adolescents	Percentage
Gr.III	14	20.59	11	17.74
Gr.II	15	22.06	10	16.13
Gr.I	15	22.06	19	30.65
Normal	24	35.29	22	35.48
Overweight	-	-	-	-
Obese	-	-	-	-
Total	68	100.00	62	100.00

cereals, roots and tubers and other vegetables while in case of urban girls percentage adequacy achieved was more than 90 in case of cereals and roots and tubers. Further, it may be portrayed that percentage adequacy attained by both rural and urban adolescent girls was less than 90 in case of G.L.V., fruit and milk and milk products.

Perusal of Table 2 showed that about 64.71% and 64.52% rural and urban girls were undernourished. Again, in case of rural adolescent girls, grade I, grade II and grade III type of under nutrition comprised of 22.06%, 22.06% and 20.59%, respectively. But, in case of urban adolescent girls about 30.65% of the respondents had grade I type of under nutrition. While 16.13% and 17.74% urban adolescent girls had grade II and grade III type of under nutrition. Thus, in urban sample majority of the adolescent girls had grade I type of under nutrition.

Conclusion :

It may be concluded from the study that average food intake of both rural as well as urban adolescent girls was less than RDA. Only, in case of roots and tubers, average intake by both the groups was more than that of RDA. Average intake of fruits, green leafy vegetables, milk and milk products was found even less than 50 per cent of the RDA. Further, the study also showed that average intake of cereals, pulses G.L.V., roots and tubers, other vegetable, milk and milk products were higher in case of rural adolescent girls. Data pertaining to under nutrition clearly showed that grade I type of under nutrition was more pronounced (30.65%) among urban girls while grade I, grade II

and grade III type of under nutrition constituted almost equal percentage (22.06%, 22.06% and 20.59%, respectively) among rural adolescent girls. There was no case of overweight and obesity was found among the study groups. Thus, it may be concluded from the study that more than 60% of adolescent girls residing in rural as well as in urban area were undernourished.

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