



Research Paper

Nutritional status of Adolescence girls in graduate and post graduate student of A.M.P.G. College. Varanasi. (U.P.)

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ABSTRACT:-

The nutritional status of an individual is often the result of many interrelated factors it is influenced by the adequacy of food intake both in terms of quantity and quality and also by the physical health of the individual. The study was conducted in Varanasi City, A total of 100 adolescent girls were selected with the help of sampling technique. Present study was to study the anthropometric measurement, clinical examination, food habit is nutrients intake among the selected adolescent girls. Mean intake nutrients were found to be more among the adolescent girls in the present study as compared to RDA by ICMR. The mean intake of calories, protein, calcium, vitamin A, vitamin B, vitamin C, fat, niacin, carbohydrate, fibre and sodium were found to be more among the adolescents having family monthly income of above Rs. 10,000 as compared to adolescents having family monthly income of below Rs. 10,000 while the mean intake of iron was found to be more among the adolescent having family monthly income of below Rs. 10,000 . Positive and insignificant correlations were observed between age of the respondents with protein, vitamin A, vitamin C, and fat while negative and insignificant correlations were observed between age of the respondents with nutrient intake of calories, calcium, vitamin B₁, iron, riboflavin, niacin, carbohydrate, fibre and sodium even at 5% level of significance. Positive and insignificant correlations were observed between body mass index of the respondents with all nutrient intake except vitamin B₁, iron and fibre.

The present study was an effort to know food habit and nutritional status of adolescent girls in AMPG College. (Varanasi) (U.P.)

I. INTRODUCTION

Adolescence is known to be a “second opportunity” for growth as it facilitates catch up growth for children experiencing nutritional deficits in their early life. Adolescence in girls has been recognized as a special period in their life cycle that requires specific and special attention. Adolescence is a period of rapid growth and maturation in human development.

The nutritional status of adolescent girls, the future mothers, contributes significantly to the nutritional status of the community. It is only recently that efforts, although small, have been made to include adolescent girls. as beneficiaries in some of the health and nutrition intervention programmes. Currently it is estimated that there are about 69.7 million adolescent girls constituting about 7.0% of the total population. Physical growth at adolescence occurs earlier and is more rapid than during pre-adolescence. In India, the proportion of adolescents getting married before completion of their growth is very high (23%) If these young girls become mother, their growth ceases, exposing them to the consequences of cephalo-pelvic disproportions.

Nutrition and food intake are closely related nutritional status and health of an individual. Adequate amount of nutrients in the form of daily diet are essential for the maintenance of health and good nutrition. Nutrition surveys conducted by National Institute of Nutrition on young girls revealed that their diets were based mainly on cereals and contained negligible amount of green vegetable and fruits (protective food).The low intake of protective food may results in nutritional disorders.

The present study was therefore, undertaken to assess the adequacy of diets, anthropometric measurements and biochemical analysis of adolescent girls. Nutritional status of adolescents is the condition of health of an individual as influenced by nutrient intake and utilization in the body. It can be determined with the help of clinical examination of symptoms of nutritional deficiencies, dietary intake, anthropometry and laboratory investigations. when these methods are used in combination like dietary assessment with anthropometry and clinical examination provide better picture of assessment of nutritional status. Nutrition is an important factor contributing to health and functional ability. The effect of nutritional status on physical and psychological well being is especially high in elderly. With the increasing longevity, nutrition status plays a significant role in the quality of life in the elderly.

The body changes in girls and boys are the result of the hormonal changes that regulate the development of sex characteristics. This difference in growth pattern also emerges as a difference in other aspects such as in the case of girls there is an increase in the accumulation of subcutaneous fat, especially in the abdominal area. There is increased bone development especially around the pelvic region. Boys, although slow in growth, beat the girls in height and weight since they put on much more muscle mass and there is growth of the long bones. The sweat glands show more activity and acne of the face and back is a common problem in this age group.

Diet in adolescents is very significant because it influences the future nutritional status. The appraisal of nutritional status should be a part of every general health evaluation, including history, physical examination and selected laboratory tests.

The Nutritional status of an individual is often the result of many interrelated factors. It is influenced by the adequacy of food intake both in terms of quantity and quality and also by the physical health of the individual. The nutritional status of community is the sum of the nutritional of the individuals who form that community.

II. METHODOLOGY

A sample of 100 adolescent girls was selected by using multistage sampling technique in the present study.

The selected student consists of Under graduate (I, II, and III year) and post graduate (I and II year) classes. Each class consist of 1-4 sections. Out of these sections, one section of each classes was selected randomly in the third stage. 20 students of each selected section of under graduate and post graduate classes were selected randomly in the fourth stage. Thus, 100 adolescent girls were the unit of information for the present study. The technique used for collecting information for the present study was questionnaire cum interview.

A sample interview schedule is divided into five parts. General information, Anthorpometric, measurements, clinical examinations, specific information related to food habits, and nutrient intake, 24 hour food recall method was used to know the food consumption of the selected adolescent girls. The collected data were coded, tabulated and analyzed using statistical techniques.

III. RESULTS:-

The present study on nutritional status of adolescence girls in AMPC College Varanasi and the result have been presented following headings.

Table No:-1. Distribution of the respondents according to their education.

Education	Respondents	
	No	%
Under graduate	76	76.0
post graduate	24	24.0
Total	100	100.0

Above table shows the distribution of the respondents according to their education. Out of 100 respondents, majority of them (76.0%) were under graduate and remaining (24.0%) were post graduate.

Observation related to anthropometric measurement of the selected respondent:

Table No.:-2- Distribution of the respondents according to weight.

Weight in kg	Respondents	
	No.	%
30-40	10	10.0
40-50	48	48.0
50-60	35	35.0
60 and above	7	7.0
Total	100	100.0
Mean	48.05	
SD	7.18	

Above table shows the distribution of the respondents according to weight. Out of 100 respondents, Majority of them (48.0%) were in the weight group of 40-50 kg, followed by 35.0% in the weight group of 50-60 kg and minimum (7.0%) were in the weight group of 60 kg and above. Further table also shows that the mean weight was to be 48.05 kg among the adolescent girls in the present study.

Table No.-3- Distribution of the respondents according to height.

Height in cms	Respondents	
	No.	%
140 – 150	17	17.0
150 - 160	58	58.0
160 - 170	25	25.0
Total	100	100
Mean	155.40	
SD	6.03	

Above table shows the distribution of the respondents according to height. Out of 100 respondents, Majority of them (58.0%) were in the height group of 150– 160 cms, followed by 25.0% in the height group of 160 – 170 cms, and minimum (17.0%) were in the height group of 140- 150 cms.

Further, analysis of data reveals that the height was found to be 155.42 cms among the adolescent girls in the present study.

Table No.-4. Distribution of the respondent according to body mass index.

Body Mass Index	Category	Respondents	
		No.	%
15 - 20	Under weight	55	55.0
20 - 25	Normal	42	42.0
25 - 30	Over weight	3	3.0
Total		100	100.0
Mean		19.88	
SD		2.64	

Above table reveals the distribution of the respondents according to body mass index. Out of 100 respondents, Majority of them (55.0%) were under weight having body mass index of 15 - 20, followed by 42.0% normal having body mass index of 20-25 and minimum (3.0%) were overweight having body mass index of 25-30. further analysis of data reveals that the mean body mass index was found to be 19.88 among the adolescents in the present study.

Observation related to nutrient intake among the selected respondents: -

Table No.-5. Mean nutrient intake among the adolescent girls as compared to RDA.

Nutrient intake	Unit	Study Group		RDA	Excess/Defit	% of Exess/Deficit
Calories	kcal	2539.24	131.01	2060	+479.24	+23.26
Protein	gm	63.37	4.85	63	+0.37	+0.59
Calcium	mg	872.07	236.90	500	+372.07	+74.41
Vitamin A	µg	2411.31	156.52	2400	+11.31	+0.47
Vitamin B ₁	mg	1.32	0.45	1.10	+0.32	+32.00
Vitamin C	mg	42.32	4.65	40	+2.32	+5.80
Iron	gm	32.76	4.38	30	+2.78	+9.27
Fat	gm	37.34	8.60	22	+15.34	69.73
Riboflavin	mg	1.50	0.06	1.20	+0.30	+25.00
Niacin	mg	17.59	2.31	14	+3.59	+25.64
Carbohydrate	gm	221.22	41.80	500	-278.78	+55.76
Fibre	mg	5.89	1.85			
Sodium	mg	133.97	36.37			

Above table assessed the mean nutrient intake among the adolescent girls as compared to RDA. Mean intake of all nutrients were found to be more among the adolescent girls in the present study as compared to RDA by ICMR.

Table No.-6. Mean nutrient intake among the adolescent girls according to age.

Nutrient intake	Unit	Age of Respondents in years				Statistical Value	
		15-18 (n=49)		19-22 (n=51)		t	p
		Mean	SD	Mean	SD		
Calories	kcal	2538.68	111.10	2539.83	148.93	0.044	>0.05
Protein	gm	63.20	5.14	63.55	4.51	0.361	>0.05
Calcium	mg	859.20	259.18	884.92	210.45	0.533	>0.05
Vitamin A	µg	2406.06	148.78	2416.78	164.02	0.343	>0.05

Vitamin B1	mg	1.31	0.41	1.34	0.48	0.337	>0.05
Vitamin C	mg	42.33	5.18	42.31	4.03	0.021	>0.05
Iron	gm	32.61	4.00	32.90	4.75	0.262	>0.05
Fat	gm	37.61	8.40	37.06	8.79	0.314	>0.05
Riboflavin	mg	1.50	0.06	1.50	0.05	0.000	>0.05
Niacin	mg	17.52	2.49	17.66	2.10	0.303	>0.05
Carbohydrate	gm	218.96	43.82	223.58	39.45	0.253	>0.05
Fibre	mg	5.79	1.71	5.99	1.98	0.541	>0.05
Sodium	mg	134.14	34.42	133.80	38.30	0.047	>0.05

Above table reveals the mean intake of various nutrients according to age of the adolescents. The mean intake of calories, protein, calcium, vitamin A, vitamin B₁, iron, niacin, carbohydrate and fibre were found to be more among the adolescents aged 19-22 years as compared to adolescents aged 15-18 year while the mean intake of vitamin C, fat, riboflavin and sodium were found to be more among the adolescents aged 15-18 years as compared to adolescents aged 19-22 years.

Table No.-7. Mean nutrient intake among the adolescents girls according to body mass index.

Nutrient intake	Unit	Age of Respondents in years				Statistical Value	
		15-20 (n=55)		20 and above (n=45)		t	p
		Mean	SD	Mean	SD		
Calories	kcal	2520.53	123.47	2562.11	136.23	1.599	>0.05
Protein	gm	62.94	4.90	63.89	4.73	0.980	>0.05
Calcium	mg	865.53	207.48	880.06	268.30	0.305	>0.05
Vitamin A	µg	2406.35	152.04	2417.37	161.63	0.350	>0.05
Vitamin B1	mg	1.34	0.53	1.31	0.31	0.336	>0.05
Vitamin C	mg	42.01	4.46	42.70	4.85	0.740	>0.05
Iron	gm	33.66	4.77	31.71	3.58	2.269	>0.05
Fat	gm	36.47	8.44	38.41	8.68	1.129	>0.05
Riboflavin	mg	1.50	0.05	1.50	0.06	0.0000	>0.05
Niacin	mg	17.47	2.18	17.53	2.45	0.561	>0.05
Carbohydrate	gm	218.54	4304	224.51	39.99	0.712	>0.05
Fibre	mg	6.04	2.16	5.71	1.35	0.892	>0.05
Sodium	mg	130.89	33.30	137.74	39.48	0.941	>0.05

Above table reveals the mean intake of various nutrients according to body mass index of the adolescents. The mean intake of all nutrients except vitamin B₁, iron and fibre were found to be more among the adolescents having body mass index of 20 and above as compared to adolescents having body mass index of 15-20 while the mean intake of vitamin B₁, iron and fibre were found to be more among the adolescents having body mass index of 15-20 as compared to adolescents having body mass index 20 and above.

Table No.-8. Correlation between body mass index of the female adolescents with various nutrient intake.

Nutrient intake	Unit	Statistical Value				
		Mean	SD	r	t	p
Body mass index		19.88	2.64			
Calories	kcal	2539.24	131.01	+0.107	1.065	>0.05
Protein	gm	63.37	4.85	+0.140	1.400	>0.05
Calcium	mg	872.07	236.90	+0.076	0.755	>0.05
Vitamin A	µg	2411.31	156.52	+0.042	0.416	>0.05
Vitamin B1	mg	1.32	0.45	-0.065	0.645	>0.05
Vitamin C	mg	42.32	4.65	+0.091	0.905	>0.05
Iron	gm	32.76	4.38	-0.180	1.811	>0.05
Fat	gm	37.34	8.60	+0.161	1.615	>0.05
Riboflavin	mg	1.50	0.06	+0.044	0.436	>0.05
Niacin	mg	17.59	2.31	+0.056	0.555	>0.05
Carbohydrate	gm	221.22	41.80	+0.101	1.005	>0.05
Fibre	mg	5.89	1.85	-0.114	1.136	>0.05
Sodium	mg	133.97	36.37	+0.060	0.595	>0.05

Positive and insignificant correlation were observed between body mass index of the respondents with all nutrient intake except vitamin B₁, iron and fibre while negative and insignificant correlations were observed between body mass index of the respondents with nutrient intake of vitamin B₁, iron and fibre even at 5% level of significance.

IV. DISCUSSION:-

The present study was to study the demographic profile of the selected adolescent girls in context to certain selected areas. The selected parameters taken were age, religion, caste, family type, number of family members, education, occupation and family income. It was found that out of the total 100 respondents, majority of them were hindus, belonged to general caste, living in nuclear families

The results of the present study revealed that the majority of respondents were in the age group of 19-22 years, educated up to under graduate, engaged in service, having one earning member in the family and family monthly income of Rs. 5000-10,000.

- In the present study, majority of them were in the weight group of 40 -50 kg, having the height of 150-160 cms and most of them were underweight.
- Kamble and Rajkumar (2003) found in their study that out of total subjects more than (50%) of the adolescents girls were found to have below normal value in all the indicates of anthropometry.
- Majority were vegetarian, took morning – evening meal per day and were having the knowledge of nutrition. Most of them consumed milk daily, pulses and green leafy vegetables occasionally. Most of the adolescents girls did not consumed meat/fish and egg. Dahiya (2003) also revealed in his study that out of the total selected subjects (59%) of rural respondents were vegetarians whereas (41%) of rural respondents were non-vegetarians.
- Mean intake of all nutrients were found to be more among the adolescent girls in the present study as compared to RDA by ICMR. Tatia and Taneja (2003) also supported the finding of the present study that nutrient intake indicated deficient intake of almost all nutrients. The energy, protein as well as iron intake was about half of the RDA while the intake of calcium was around one third of RDA.
- The mean intake of calories, protein, calcium, vitamin A, vitamin B₁ iron, niacin, carbohydrate and fibre were found to be more among the adolescents aged 19-22 years as compared to adolescents aged 15-18 years while the mean intake of vitamin C, fat, riboflavin and sodium were found to be more among the adolescents aged 15-18 years as compared to adolescents aged 19-22 years.
- The mean intake of all nutrients except vitamin B₁, Iron and fibre were found to be more among the adolescent having body mass index of 20 and above as compared to adolescents having body mass index of 15-20 while the mean intake of vitamin B₁, iron fibre were found to be more among the adolescents having body mass index of 15-20 as compared to adolescents having body mass index 20 and above.
- positive and insignificants correlations were observed between age of the respondents with protein, vitamin A, vitamin C and fat while negative and insignificants correlation were observed between age of the respondents with nutrient intake of calories, calcium, vitamin B₁, iron, riboflavin, niacin carbohydrate, fibre and sodium even at 5% level of significance.
- Positive and insignificant correlations were observed between family monthly income of the respondents with vitamin B₁, vitamin C, carbohydrate fibre and sodium.
- Positive and insignificant correlations were observed between body mass index of the respondents with all nutrient intake except vitamin B₁, iron and fibre.

V. CONCLUSSION:-

The present study was an effort to know food habit and nutritional status of adolescent girls in Varanasi city. As it was expected, wide variations for the most of parameters were investigated. Out of the total 100 respondents, majority of them were hindus. belonged to general caste, living in nuclear families. The results of the present study also revealed that the majority of respondents were in the age group of 19-22 years, educated up to under graduate, engaged in services, having one earning member in the family and family monthly income of Rs. 5000-10000.

Most of them were found to be underweight and their organs were normal.

Majority were vegetarian, took morning-evening meal per day and were having the knowledge of nutrition. Most of them consumed milk daily, pulses and green leafy vegetables occasionally. Most of the adolescent girls consumed fruits juice, tea/coffee and salad. Majority of the respondents have changed their food during illness and observed fast. Most of the adolescent girls consumed spicy food outside home in special function and cooked rice with water.

Mean intake of all nutrients were found to be more among the adolescent girls in the present study as compared to RDA by ICMR, positive and insignificant correlations were observed between age of the respondents, family

income and body mass index with protein, vitamin A, vitamin C and fat while negative and insignificant correlation were observed between age of the respondents, family income and body mass index with nutrient intake of vitamin B₁ even at 5% level of significance.

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