

Study on Nutritional Status of Adolescent Girls in Karnal District

Garima Saxena

Assistant Professor,
Department of Home Science
KVA DAV College for Women
Karnal, Haryana

ABSTRACT:

Keeping in view, the importance of adolescent period in human life and nutritional problems of adolescent girls, the present study has been elucidated to assess the nutritional status of adolescent girls. 200 adolescent college girls in the age group of 17 – 20 years were selected randomly from two colleges of Karnal district. Nutritional Status was assessed with the help of body mass index and was classified according to WHO standards. The mean value of height, weight and BMI was 153.75 cm, 48.96 kg and 20.88 kg/m². The dietary intake of girls was found to be lower than the recommended dietary allowances as college girls usually neglect the importance of proper diet which plays key role for the humans specially the student's age to achieve the goals.

KEY WORDS:- Body mass index, dietary intake, nutritional status

INTRODUCTION:

Adolescence is a period of transition between childhood and adulthood. It occupies a crucial position in the life of human beings, characterized by an exceptionally rapid rate of growth. Adolescents in India, account for one-fifth of the total population and are a significant human resource that needs to be given ample opportunity for holistic development towards achieving their full potential. Adolescence is a crucial period in a woman's life. Health and nutritional status during this phase is critical for the physical maturity, which in turn influences the health of the offspring. It is seen that the rate of low birth weight, prematurity and neonatal and infant mortality is high among children born to malnourished adolescent girls.

Under-nutrition among adolescents is a serious public health problem internationally, especially in developing countries. Poor nutritional status during adolescence is an important determinant of health outcomes. Short stature in adolescents resulting from chronic under nutrition is associated with reduced lean body mass and deficiencies in muscular strength and working capacity. In adolescent girls, short stature that persists into adulthood is associated with increased risk of adverse reproductive outcomes. As health systems have accepted life-cycle approach, the health issues of adolescents, like sexually transmitted diseases and reproductive health have been given due importance, but not on their nutritional status.

Empowerment of the girls is necessary to help her cope with the changes and promote awareness of health particularly nutrition and reproductive health, so as to break the intergenerational life cycle of nutritional and gender disadvantage and provide an enabling and supporting environment for self-development. Adolescent girls health covers nutritional status, morbidity, and reproductive health. During the period of adolescence the nutrient needs are the greatest. The girls are usually physically stunted a manifestation of chronic protein energy malnutrition

Pubertal spurt leads to greater nutritional requirements among adolescent girls, but psychosocial and emotional problems too, may exert significant influence on their nutritional status. Unfortunately assessment of nutritional status of adolescent girls has been the least explored area of research. Good health and nutrition are necessary for proper learning at school. In this context, the present study was taken up to study the nutritional status and dietary intake among the adolescent girls of Karnal district.

METHODOLOGY:

The present cross sectional study was conducted on 200 college going adolescent girls of district Karnal, ranging in age from 17 to 20 years. The data was collected during the month of February and March, 2015. A questionnaire was formulated with well defined open and close ended questions arranged logically and were investigated for two anthropometric measurements i.e. height, weight. Derived index i.e. Body Mass Index (BMI) were computed from these anthropometric measurements. Beside these data, general information on name, age, sex, type of family, occupation and twenty four hour recall dietary intake was also recorded.

NUTRITIONAL STATUS:

Nutritional status of girls was assessed by Anthropometric measurements viz height, weight, BMI.

ANTHROPOMETRY HEIGHT:

Stadiometer (measuring rod) capable of measuring to an accuracy of 0.1 cm was used to assess height of the subjects. The subject was made to stand without foot wear with the feet parallel and with heels, buttocks, shoulders, and occipital touching the measuring rod, hands hanging by the sides. The head was held comfortably upright with the top the head making firm contact with the horizontal head piece.

WEIGHT - A portable weighing machine with an accuracy of 100gms was used to record the weight of the girls. Checking the scale with a known weight was done frequently and adjustment to zero was done every time for accurate reading. A girl were instructed to stand on the weighing machine with light clothing and without footwear and with feet apart and looking straight and weight was recorded to the nearest value.

BODY MASS INDEX (BMI):

BMI was calculated using the formula ($BMI = \text{Weight in kg} / \text{height in m}^2$). The girls were categorized into various grade based on BMI according to WHO International Standard. That is, Grade 3 thinness ($BMI < 16 \text{ kg/m}^2$), Grade 2 thinness ($BMI 16-16.9 \text{ kg/m}^2$), Grade 1 thinness ($BMI 17-18.49 \text{ kg/m}^2$), Normal ($BMI 18.5-24.99 \text{ kg/m}^2$), Overweight ($BMI 25-29.99 \text{ kg/m}^2$) and Obese ($BMI >30 \text{ kg/m}^2$) [14]. The girls were categorized into various grade based on BMI according to National Standard, under nutrition ($BMI < 18.5 \text{ kg/m}^2$), Normal ($BMI 18.5-23.5 \text{ kg/m}^2$), and Overweight ($BMI > 23.5 \text{ kg/m}^2$).

DIETARY INTAKE (DI)-

A dietary history is perhaps the best means of obtaining dietary intake information, and refers to a review of an individual's usual patterns of food intake and the food selection variables that dictate the food intake.

24-HOUR RECALL METHOD- This method was used to study the dietary intake of adolescent girls. The 24-hour recall method of data collection requires individuals to remember the specific foods and amounts of foods they consumed in the past 24 hours. The information is then analyzed by the person or professional gathering the information.

RESULT:

A total 200 college girls were studied. Of that 36.5% (73) were in the age group 18 years. Followed by 31% were in age group 19 years, 29% were in age group 20 years and very few that is 3.5% in the age group 17 years. (Table -I)

TABLE I: DETAILS AGE WISE DISTRIBUTION OF STUDY SAMPLE

Age in years	Frequency	Percentage
17	07	3.5%
18	73	36.5%
19	62	31%
20	58	29%

Total	200
-------	-----

Table II presents the mean height, weight and body mass index of the sample girls from 17 to 20 years. At the age of 17 years the mean value of height was 151.57 cm which increased to 155.56 cm at the age of 20 years. There was a little increase in mean values of height of girls from 17 to 20 years. The weight is the most widely used simple and reproducible anthropometric measurement for the evaluation of nutritional status. At the age of 17 years, the mean value of weight was 46.14 kg, followed by 46.91 kg, 51 kg and 51.8 kg at the age of 18, 19 and 20 years respectively. The mean value of BMI was 20.69 kg/m² at 17 years which increased to 21.45 kg/m² at 20 years, with a slight decline witnessed at the age of 18 years.

TABLE II: MEAN OF HEIGHT, WEIGHT AND BODY MASS INDEX OF STUDY SAMPLE

Age in years	Frequency	Height/stature Mean(cm)	Weight Mean (kg)	BMI Mean (kg/m ²)
17	07	151.57	46.14	20.69
18	73	153.68	46.91	19.93
19	62	154.20	51	21.46
20	58	155.56	51.81	21.45
	200	153.75	48.96	20.88

In the present study according to WHO reference standards, 6% (12/200) girls were under-nourished (BMI ≤ 18.5). 5 (2.5%) was found to be overweight and none of the girls was found to be obese. According to the new guidelines by the Government of India as per the diagnostic cut-off values the 7.5 % was found to be undernourished while 17 % was found to be Overweight (BMI > 23 kg/m²).

TABLE III: NUTRITIONAL STATUS OF STUDY SAMPLE AS PER NATIONAL AND INTERNATIONAL CLASSIFICATION OF UNDERWEIGHT, OVERWEIGHT AND OBESITY ACCORDING TO BMI

WHO Standard		
Grade Of Under nutrition	BMI Cut off Value Kg/m ²	No. of girls N (%)
Grade 3 Thinness	< 16	NIL
Grade 2 Thinness	16 – 16.99	NIL
Grade 1 Thinness	17 – 18.49	12 (6%)
Normal	18.5 – 24.99	183 (91.5%)
Over weight	25 – 29.99	5 (2.5%)
Obese	>30	NIL
Indian Standard		
Under weight	< 18.5	15 (7.5%)
Normal	18.5 – 22.9	151 (75.5%)
Over weight	23 and above	34 (17%)

Dietary nutrients are consumed by the body to provide energy and structural material needed for regulating growth, maintenance and repair of the tissue. The intake of all the essential nutrients in the form of a balanced diet brings health benefits for the present and also for the future. Energy is required for growth and activity. Insufficient food will not only result in under nutrition in terms of inadequate weight gain but will also hinder growth. The rate of growth fluctuates from one age to another. Adolescents burn a large number of calories in going about their day to day activities. The data presented in table IV represents the mean intake of calories, protein, fat, iron and retinol among the girls. The mean of nutrient intake is lower than the

RDA (Recommended Dietary Allowances) in all the nutrients. The protein intake was significantly low as compared to the fat which may be due to consumption of junk food and oily food cooked at home. The average diet was also deficient in micronutrients. As a preventive strategy, there is need to apply health and nutritional education programme for inculcating healthy life style.

TABLE IV: NUTRIENT INTAKE PER GIRL PER DAY

Nutrients	Nutrient Intake	Recommended Intake
Calories (kcal)	1875	2060
Proteins (gm)	38	63
Fat (gm)	33	45
Iron (mg)	11.5	30
Retinol (μ g)	420	600
Thiamin (mg)	05	1.0
Riboflavin (mg)	0.6	1.2
Vitamin C (mg)	29	40

SUMMARY:

Girls are the core of human dynamics; only healthy females can make socioeconomic upliftment of the country. College girls are in reproductive age and are the future mothers; their nutritional status is significant and should be taken care of. Nutritional status of the mother is the result of her life time dietary habits, had a greater influence on the outcome of pregnancy than her dietary status of her own mother will influence the outcome of her pregnancy. Present study reveals that 75% of the adolescent's girls fall into normal category, followed by 17% over weight and 8% under weight on the basis of BMI classification as per UGC specification. Nutrient intake of the sample population is lower than the recommended allowances as the girls usually skip their meals. A large number of them do not practice healthy eating habits. Irregular meals, snacking, eating away from home and following alternative dietary patterns characterize the food habits of college girls.

It is proposed that Health awareness seminars/ workshops on the proper intake of good Nutrition or Balance diet should be arranged for college students at provincial and national level and Nutrition or Balance diet subject should set as compulsory subject for all the students.

REFERENCES:

1. Das DK, Biswas R. Nutritional Status of adolecent girls in rural areas of norths 24 Parganas district .West Bengal. Ind J Pub Health. 2005;49(1):18-20.
2. Venkaiah K, Damayanti K, Nayak MU, Vijavaraghvan K. Diet & Nutritional Status of rural adolescent in India. Eur J Clin Nutr 2002; 56(1) 119-25.
3. WHO. Nutrition in adolescence: Issues and challenges for the health sector: Issues in adolescent health and development, 2005.
4. World Health Organization. Nutritional status of adolescent girls and women of Reproductive age. Report of Regional consultation, Geneva, World Health Organization, SEA / NUT /141.1998; 3)
5. The Health Ministry has reduced the diagnostic cut-offs for body mass index
6. (BMI) to 23 kg/m² and the standard waist circumference to deal obesity.
7. Alam N, Roy SK, Ahmed T, Ahmed AMS. Nutritional Status, Dietary Intake, and Relevant Knowledge of Adolescent Girls in Rural Bangladesh, J Health Population Nutr. 2010;28(1): 86-94.
8. Eikhalfifa, A.M.O., S. Godbi and S. Mohammed, 2000.Nutritional assessment of students in university hostel. J. Ahfad, 17: 33-44.
9. Abdull, H.N.H., N.D. Muniandy and A. Danish, 2012.Nutritional status and eating Practices among University students in selected Universities in Selangor, Malaysia. Asian J. Clin. Nutr., 4: 77-87.