

An Epidemiological Study on the Nutritional profile of Adolescent Girls and Boys Residing in Kota District

Abstract

Adolescence is extremely dynamic phase of life which accelerates the physical enhancement and development into human body. Due to changes in mental and physical balance during age of 10 to 19 years many psychological and emotional changes take place. Adolescence is a stage of change in human body. It is also called the stage of complete growth. According to Dr Brinda Singh (2010), adolescence is a period of stress, tension and aggressiveness. During adolescence, it is very important for teenagers to take care of their health otherwise there may be a deficiency or excess of many nutrients in body which results in improper growth and development mentally as well as physically.

Introduction

Adolescence is like a growing plant. During growth of plant it requires proper amount of carbon di-oxide, water, sunlight and care for becoming tree; similarly in adolescence human need proper nutrition and care for their body. In this stage of life proper and balanced nutrients requires because this stage is the foundation of human development. In adolescence, there are specific needs to adjust the changes, such as the need for nutrition, balanced tasty and enjoyable diet, sports and exercise for physical growth. In Adolescence stage nutrients such as fat, calcium, iron, zinc, vitamins and fiber as well as calories and protein requires for good growth and development.

Nutritional deficiencies and poor eating habits has long-term consequences on adolescence. In this stage nutritional disorders invite dietary diseases in future, which include lack of growth in height, obesity, weak bones, sexual immaturity, malnutrition etc.

Objectives of the study

Teenagers living in hostels do not take care of their nutrition properly due to very busy study schedule and they have to face many nutrition related problems. During adolescence, there are many changes related to eating habits like, they prefer junk-food more than nutritious food.

1. Compilation of basic information related to adolescents.
2. Knowledge of nutritional requirements in adolescence.

3. Study and impact of nutritional disorders in adolescents.
4. Knowledge of nutritional status of adolescent through nutritional assessment methods.
5. Study of nutritional status of adolescent boys and girls living in hostel.

On the basis of the following points purpose of the study is to obtain knowledge of the nutritional conditions present in adolescent boys and girls, their food related activities, attitudes and condition.

Method of Study

This study is done on nutritional level of adolescent students staying in hostels which comprises both boys and girls studying in Kota city. There are many governments, private and public education institutions in Kota city where students not only from Kota but from all over the India come and study in different institutions. Based on facility sampling, hostels of six main areas of Kota have been covered for study.

Eight hostels were covered from the selected areas. After selecting the hostels for study, adolescent boys and girls were selected from each hostel by simple random sampling (SRS). For the study, 800 boys and girls, (400 adolescents boys and 400 adolescent girls) were taken. The selected adolescent age group 11 to 19 years is classified on the basis of early adolescence from 11 to 13 years age, early adolescence from 14 to 16 years age and adolescence from 17 to 19 years age. Initially general information about adolescent, general health related information, nutritional level assessment information (anthropometric or anatomical assessment, dietary assessment, clinical assessment) other information was obtained from the selected adolescent girls through questionnaire (instrument).

Nutrition Level Assessment of Adolescent:

General information such as name, date of birth, age (year), parents' name and occupation, address, gender, category, religion and socioeconomic level, educational level as well as hostel name were obtained from the boys and girls. General health information related to regular health check-up, family background disorders, any present physical disorder and genetic diseases were obtained through questionnaire.

In the anatomical assessment, body mass index was calculated based on the height and weight of the adolescents. The nutritional level of adolescent was determined by measuring the middle upper arm circumference. In the dietary assessment, 24-hour recall method was used for the dietary survey of adolescents. Adolescents residing in the hostel were fed the diet table for the whole day consumed by them. The dietary assessment of adolescent boys and girls has been divided under two parts in which their food behavior and the amount of dietary intake has been observed.

Nowadays adolescent boys and girls prefer to consume snacks, carbonated beverages and fast food, junk food which are bad for their health.

Information related to the dietary behavior of adolescents was obtained through interviews. The amount of dietary intake was assessed for the nutrients present in the diet taken by them. Assessment of Calorie and protein in diet was done from the recommended dietary allowance (RDA) proposed by ICMR.

Adolescents were asked questions related to their various body parts (hair, mouth, eyes, lips, teeth, gums, glands, and skin) which filled in the questionnaire. By evaluating the data obtained from all these methods, the nutritional level of selected adolescent boys and girls was obtained used in study.

Result

After analyzing the data obtained in the present research from various activities and methods of the research methodology, the main conclusion was drawn. The conclusions obtained in the study is as follows - out of the total number of 800 adolescents selected in the study, 22.5% boys aged 11 to 13 years, 17.5% girls, 33.75% boys from 14 to 16 years, 45% girls and 42.5 years of 17 to 19 years % boys, 47.5% were girls.

General information of boys and girls was obtained through questionnaire, in which information related to their age, educational level, category, socioeconomic level, name of hostel was obtained. On the basis of the above data, it was revealed that 55.4% of boys, 65% of girls were not aware of their health. They do not get their health checked regularly. Genetic disorders were found in 40% of boys and 30% of girls. Food allergy was detected in 20% of boys and 30% of girls. At the time of interview, it was revealed that the following disorders (more or less blood pressure, migraine thyroid, asthma, diabetes) were found in the family background of 80% of boys and 27.5% of girls. Information was obtained from 60% of adolescent boys and 75% of adolescent

girls related to disorders occurring in the last three months in which they had suffered from fever, cold, diarrhea, jaundice and any other disorder.

Table 1.1
Calculation of body mass index of adolescent Boys and Girls

Sl.no.	BMI	Boys		Girls		Body Mass Index Result
		Number	Percentage	Number	Percentage	
1	<18.5	152	38%	160	40%	Underweight
2	18.5 - 24.9	160	40%	112	28%	Normal
3	25- 29.9	88	22%	128	32%	Overweight

The body mass index was calculated based on the height and weight of boys and girls where height in square meters and the weight in kilograms taken which is based on index determine by WHO. Based on the measurement of BMI, 38% of adolescents boys and 40% of adolescents girls were underweight (<18.5). 40% of normal weight adolescents boys, 28% of adolescent girls (18.5 - 24.9) and 22% of adolescents boys, 32% of adolescent girls were overweight (25–29.9).

Table 1.2
Calculation of upper arm circumference (MUAC) among adolescent Boys and Girls

Sl.no	Mid-Upper Arm Circumference	Boys		Girls		Result Of Middle Upper Arm Circumference
		Number	Percentage	Number	Percentage	
1	<23 cm	120	30%	170	42.50%	Underweight
2	23 - 33 cm	180	45%	140	35%	Normal
3	<33 cm	100	25%	90	22.50%	Overweight

To assess the nutritional status of adolescents, mid-upper arm circumference (MUAC) was measured under the anthropometric method in which a colored tape was used to measure the arm. Based on the results obtained from the data, under the MUAC measure, 42.5% of adolescents boys and adolescent girls were short (<23 cm) and 45% of adolescents boys, 35% of adolescent girls (23-33 cm) were normal and 25% of adolescents boys 22.5% of adolescent girls. That the MUAC count (<33cm) was high.

The 24-hour recall method was used to assess the type and amount of food consumed by adolescents. Adolescent girls come away from home and face food related problems and they choose from countless messes running in the city to arrange their food as per tastes and preferences. 55% boys, 50% adolescent girls eat at their favorite mess. 25% teenagers' boys and 35% adolescent girls had arranged Tiffin in hostels and 20% boys and 15% girls. The fact came out in the interview that milk, fruits and vegetables are consumed less in their diet by the adolescent boys and girls. 35% of adolescent boys, 37.5% of adolescent boys and girls do not consume milk. 57.5% of adolescent boys and 55% of adolescent girls do not consume fruits at all. Raw, cooked vegetables were not consumed by 30% of boys, 34.6% of girls. Knowing the reason for not consuming milk, fruits and vegetables by adolescent girls, they told that they do not like the taste and smell and do not include dietary habits in their diet. In the interviews it was revealed that adolescent girls living away from their homes have to adjust with many problems, adolescents 60%, adolescent girls 62.5% mental stress affects the way of eating. Due to mental stress, adolescent girls eat less food or eat more food. 35% of teenagers and 45% of adolescent

girls that little bit of time is used to switch to eating (Nibbling). 40% of adolescents and 57% of adolescent girls take diet keeping in mind the body image. Nutrients of the diet consumed by adolescent girls were assessed. On the basis of one day's diet table, the amount of calories and protein present in the diet was compared with the quantity of each class proposed by ICMR.

Table 1.3

Boys in Ahriy nutritional elements that (calories, protein) intake of total average volume

S. no	Nutritional ingredients	11-13 year old Boys		14-16 year old Boys		17-19 year old Boys	
		Proposed Quantity (ICMR)	Actual Average	Proposed Quantity (ICMR)	Actual Average	Proposed Quantity (ICMR)	Actual Average
1	Calories (Kcl)	2190	2104.32	2450	2055.59	2640	2186.77
2	Protein (gm)	54	68.5	70	65.0	78	70.2

Table 1.4

Girls in Ahriy nutritional elements that (calories, protein) intake of total average volume

S.No	Nutrients Ingredients	11-13 Year Old Girls		14-16 Year Old Girls		17-19 Year Old Girls	
		Proposed Quantity (ICMR)	Actual Average	Proposed Quantity (ICMR)	Actual Average	Proposed Quantity (ICMR)	Actual Average
1	Calories (Kcl)	1970	1849.28	2060	1919.55	2060	1926.54
2	Protein (gm)	57	63.4	65	69.6	63	67.1

On the basis of the data obtained from the comparative study with the prescribed amount of calories and protein in boys (90) and girls (57) of 11 to 13 years, 23.33% boys and 17.54% girls were under-nourished. Talking about general nutrition, it was 48.89% boys and 47.37% girls. Over nutrition were 27.88% boys, 35.09% girls. Based on the data obtained for (135) boys and (160)

girls aged 14-16 years, 33.33% boys, 41.88% girls were under nutrition. Nutrition level of 40% boys, 41.88 % girls was found to be normal. The diagnostic test has been done on the basis of general physical symptoms of boys - girls. Based on the data obtained from the interview, the common symptoms related to hair are in 46% of boys and 70.5% of girls. Clinical symptoms related to the mouth (moon shape, face bloated, face hanging) have been seen in 30% of boys, 25% of girls. Symptoms related to eyes (conjunctiva dryness, dryness of the white part of the eye, pigmentation, loss of eye brightness) have been found in 55.75% of boys and 57% of girls. 4.25% boys 4% of girls have clinical symptoms of lips (angular mouth, both corners of the mouth, upper and lower corners of the lips burst). Tongue-related clinical symptoms (tongue red and soft, purple tongue) were observed in 4.5% of adolescent's boys and 5% of adolescent's girls.

6.8% of boys, 6.5% of adolescent girls, teeth (scarred enamel, spots on the teeth) and gums (blood and swelling in the gums) in 3.25% of boys, 3.5% of girls and glands (of thyroid and mastoid gland) in 2.5% of boys, 3.5% of girls Growing up) and 7.7% of boys, 8% of girls have shown symptoms related to skin (skin dry and scaly, sores).

Conclusion

The survey found nutritional levels unsatisfactory in adolescent boys and girls live in Kota come from outside for study, based on BMI and MUAC standards obtained from adolescent boys and girls based on WHO prescribed standards. On the basis of the results obtained after conducting a diet survey, boys and girls living in hostels consume fruits, vegetables, milk and nutritious food less than the requirement. There are many changes in the lifestyle of boys and girls when they go away from home and they consume inadequate nutrition which has serious consequences. Boys and girls living in hostels have to face many problems like malnutrition when food options are limited and obesity or overweight when options are unlimited. Therefore, as a conclusion, it can be said that the nutritional level of boys and girls is found to be low on the basis of the prescribed standards.

Suggestion

- Boys and girls are careless about their health and they are not aware of proper nutrition related to their health. Therefore, boys and girls should be given information about requirement of proper nutrition.

- Due to improper schedule of boys and girls, they ignore regular meals. They should ensure that food is not neglected by them and taken on time.
- Health and nutrition related programs should be organized in schools and coaching institutes, which will help boys and girls to improve their health status.
- Boys and girls are consuming nutrients such as calories and protein in their diet less than the daily requirement as compared to RDA, so they should be provided with information about the nutrient intakes prescribed by the RDA.
- Boys and girls eat food in hostel mess or outside mess. Hostel mess and outside mess operators should be informed about the importance and requirement of nutrients in the diet. The daily diet given by them should be nutritious.

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