

# To study the impact of dietary habits and nutritional intake on the behaviour of the adolescents

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Present study was conducted to know the dietary habits and nutritional intake of the adolescents. The present study critically examines different dimensions of health, nutrition and socio-psycho behaviour of both rural and urban adolescents of Ghaziabad. The suggestions of the study demand interventions to be initiated by Government, parents, teachers, NGOs, academic institutes and newline health workers. Adolescence is a period between childhood and adulthood during which the individual learns the skills needed to flourish as an adult. Although adolescence begins with the biological series of events called puberty, some authors suggest that adolescence was culturally invented during the last century and defined it as a period in which the individual could gain the newline complex skills necessary to navigate adulthood in a Western culture. Newline Puberty, the beginning of adolescence, is marked by dramatic physical changes in both growth rate and sexual characteristics (Glucksberg and Darly, 1980; Field, 1995). Study was carried out on 1500 adolescents (750 boys and 750 girls) from Ghaziabad. The results show that some of the adolescents lag behind the standard weight and height. Most of the adolescent were found to have one or more than one medical problems at present and in the past also. The diet of adolescent were lacking in most of nutrients with some specific nutritional deficiencies seen in the sample. The psychosocial behaviour of adolescents shows that they have few behavioral problems and indulge in uncivilized and unhealthy addictions like smoking and substance abuse.

**Key Words :** Nutrition, Health, Adolescence

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## INTRODUCTION

Adolescence is generally defined in reference to a period of years. W.H.O. has defined adolescence as a period between the age group of 10-19 years. Adolescence may be apparently defined as period of physical, psychological and social maturity from childhood to adulthood *i.e.* the period extending from puberty to the attainment of full reproductive maturity.

It is a bridge between childhood and adulthood and a period of rapid changes in almost all developmental dimensions of growing to sexual maturity, discovering one's real self, defining personality values and finding one's vocational and social directions. It is also a time of testing of pushing against ones capabilities and limitations as posed by adults (Clifford and Morgen, 1993).

However, defining the age of adolescence varies from one social-cultural setting to another. A young person attending the school may be considered an adolescent at one place while another person of the same age group at another place may be married and as such

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be defined as an adult. The age of puberty has shifted gradually to earlier years and a lengthened period of education and dependence has served to expand the life of adolescence (Garg, 2002).

During this period of life the stress of rapid growth becomes evident and are manifest both in Physical and mental changes and in sexual maturation of the individual. If there is non acceptance of adolescent role as an individual or a male or a female, there is apt to develop a defiant loneliness, feeling of rejection, and an unbearable resentment or even hatred of oneself or of one or both parents that may transfer to all members of a particular sex or social group or to society as a whole with disastrous consequences (Bhattacharya, 1985).

Adolescence is a time of change to adult behaviour and there by eating habits of childhood gradually change into those typical of an adult. Adolescence is, therefore, an important time that demands for health and nutrition education. Eating habits may be erratic large quantities may be eaten one day and very little next day. It has been pointed out by researchers that adolescents in different parts of the country had nutritional deficiencies. It occurs in boys as well as in girls. Adolescent girls are at special nutritional risk because of iron deficiency anemia. The requirement of iron, which is 18 mg/day, is needed not only to make losses due to menses but also to build up reserves (Kurz, 1996; Drummond and Crambic, 1996; Gregory and Cliffler, 2000).

Calorie requirement for most adolescent is high. An adolescent may rush off to school without eating breakfast. When away from home he or she usually eats readily available meals that are acceptable to its peer groups. This means snacks in the form of fast-food (junk food). He/she eats fewer meals at home where parents can provide them nutritious diet (Heald, 1975).

Adolescents may indulge in food fads, macrobiotic diets and semi starvation regimens in calories, vitamins and minerals. An adolescent protein need/unit body weight is higher than that of adult but less than a rapidly growing infant. Adolescents have higher vitamin and mineral needs compared with people at most other life stages. Adolescents are mostly concern with vitamin A, calcium and iron each of which plays an important role in growth. Adolescents who do not achieve sufficient bone density have greater risk of developing osteoporosis later in life (Heald, 1975).

Physical changes cause an adolescent to focus

attention on his body as he tries to incorporate his new appearance into his developing sense of identity. Many adolescents go through stages, which they are pre-occupied with their appearance and body functions. They may see nutrition as helpful or harmful to their developing body image. A boy may show concern about his body in relation to athletic ability. He may want to eat more to increase his weight and muscle mass. The deposition of fat which normally occurs in adolescent girls may cause her to become concerned that she is getting fat limiting calorie intake at this time may interfere with linear growth. The onset of obesity during adolescence may contribute to a number of psychological problems. It may interfere with development of positive body image (Starz and Greene, 1983; Kapil *et al.*, 2002).

Present study was to observe the dietary habits and nutritional intake of the adolescents. I have tried to critically examines different dimensions of health, nutrition and socio-psycho behaviour of both rural and urban adolescents of Ghaziabad.

### Objectives :

The study was undertaken with following objectives:

- To assess the nutritional status of adolescent through anthropometrics measurements (height and weight).
- To comprehend the present health, sickness status and the past illness of the adolescents.
- To study the dietary habits and nutritional intake of the adolescents.
- To know various food taboos among adolescents.
- To workout the effect of mass media on food preferences and intake of adolescents.
- To know socio-psycho behavioral problems among adolescents.
- To see the inclination of adolescents towards physical activitie

### Limitations:

- After obtaining the list of Intermediate Colleges of Ghaziabad, only 20 colleges (10 from urban area and 10 from rural area) were selected for data collection.
- The study was limited on class 10<sup>th</sup> students only.
- The present study was limited to 750 boys and 750 girls only.

## Review of literature :

The review of literature helps the researcher to investigate a specific field of his interest in respect of researchers that have been conducted in India as well as abroad. It provides insight as well as direction in indicating, identifying the research problem, in selection a sample, in selection appropriate methodology and the statistical techniques. Hence, review of related literature is an important prerequisite to the actual planning and then the execution of any research work. History related to dietary habits and nutritional intake in adolescents

Biologists describe the adolescence the period between puberty and the termination of physical growth.

Chauhan (1983) was found Adolescence is the most important period in human development about which poets, writers and historians have made occasional references and have held in high esteem the sacrifices made by the adolescences. It is the transaction period and turning point in the life of the individual .

Virginia (1980), was found Differences between sexes and between individuals of the same sexes become more pronounced during adolescence period. During this age span the peripheral parts of the extreme ties tend to be more advanced in maturation than proximal. The peak growth of leg length is usually reached before hip width reaches its maximum increase. Trunk length and chest depth are usually the last of the skeletal measurements to reach their peak growth. Therefore, the ratio of trunk to leg length rises during adolescence in both the sexes. The peak velocity in muscle size and in strength usually follows the age of maximal increase in stature and the peak velocity of weight gain occurs approximately 6 months after peak height velocity

Roche (1976) and Suiter and Growlog (1984) was showed, the second phase of adolescence involves lateral growth. Here the adolescence fills up or gains weight. External factors such as diet and exercise effect weight gain more than linear growth, so weight gain can vary widely among adolescent. Atypical healthy girl will gain 35 pounds during adolescence; a typical boy gains about 45 pounds. Girl's peak weight gain usually occurs around the time of menarche.

Srilakshmi (2002) was showed, Dietary recommendations during adolescence must take into account the social and attitudinal characteristics of the individual as well as the timing and the rate of growth. Greater independence from family supervision and

guidance is associated with increased peer conformity and influences of mass media. Rapid changes in body create alterations in body image and individual reactions to those changes. Emotional instability may cause intermittent stress. Physical activity may be higher among individuals who participate in competitive sports but very low in those with sedentary pursuit's time schedule may lead to the omissions of some meals or to greater frequency of eating may be consumed more often away from home and may commonly be bought in franchised food outlets. Interest of non-traditional eating pattern may increase. Nutrient needs during adolescence are dictated by the rate of growth. Requirement increases at the outset of growth. Spirit reaches their maximum at the time of peak growth and gradually approach adult levels as growth subsides.

Johnston (1958) and WHO (1973) said that for most adolescents eating to satisfy appetite offers a reasonably sensitive indicator of energy needs. Protein needs represent 12-14 per cent of energy needs. Protein intake usually exceeds 1 gm/kg body weight. This meats growth needs and for the pubertal changes in both sexes and for the developing muscle mass in boys. The protein needs for both boys and girls are the same up to the age of 10 years. But there is a gradual difference in their requirement from the age of 10 years where the boys have higher requirement compared to girls. This pattern is similar in calorie requirement. The RDA levels for males increase 1gm/kg body weight *i.e.* 45g to 56 g at 11-14 years and 0.85g/kg at 15-18 years and 0.8g/kg at 19- 22 years; for females 46g at 11-18 years and then decreases to 44 g at 19-22 years. The allowances per kilogram are same for both sexes at comparable ages.

Adamson (1996); Drummond and Cramble (1996); Gregory and Clifferd (2000) was found Eating low nutrient density food in moderation does not pose a serious threat to the nutritional status of an adolescent whose basic food habits are nutritionally sound. However, when carried to extremes, as when practiced by the adolescent who does not and or has not have good food habits, these practices may compromise growth and maintenance of body functions. Looking at the adolescent, intake of specific nutrients as well as comparing his food intake to the basic food gives an indication of the diets adequacy. Nutrients to be checked include iron, Vitamin A, C, B1, B2 and calcium. Parents can encourage open discussion on nutrition and food habits and make constructive suggestion rather than

criticize ways to promote sound eating habits including setting a good example keeping nourishing ready to eat foods or involving a teen in meal planning and making nutrition information available. The adolescent needs the opportunity to apply nutrition knowledge himself. He is more likely to respond positively when allowed to make his own decisions than when told what to do.

Srilakshmi (2002), showed a higher percentage of upper middle class girls (36 %) deficit in BMI indicating that weight deficit is a major factor possibly related to the poor energy intake of this group of population, while among the urban poor and rural girls this is mainly due to their getting lower priority for the food over the boys in the family. In the upper class, the weight deficit is related to the personal likes and dislikes and also a conscious attempt towards maintaining a low weight in the fear of becoming over weight .

## METHODOLOGY

Keeping in view the objectives of the present study, the researcher has organized the procedure of the study under the following heads :

### Methods of the study:

I have used descriptive method for this study.

### Selection of sample :

The sample was selected on Random basis and the sample drawn for the study was the high school students of ghaziabad city. For this study I have taken 1500 adolescent (boys and girls) of 13-18 years of ix and x grade. In this study for data collection, The information was collected from primary as well as secondary sources. In primary source, questionnaire-cum-interview technique was used. In secondary source, journals, books and related literature were studied. After the data collection was completed the scores were tabulated respondent wise and were arranged in the tabular form and computed for statistical analysis, interpretation and discussion. After this I have used appropriate mean, standard deviation, student t-test and correlation coefficient for analyzing the data.

## OBSERVATIONS AND ASSESSMENT

Focusing upon the above information the results was interpreted in the following section

– The age wise distribution of adolescents revealed

44 per cent were in the age group of 13-14 years, 34 per cent in the age group of 14-15 years and 22 per cent in 15-16 years. 55 per cent of boys and 54 per cent of girls were from illiterate families.

– The maximum number *i.e.* 50 per cent of adolescent boys were from service class families and similarly maximum girls *i.e.* 40 per cent were from skilled labour family. 57 per cent of boys and 60 per cent of girls were from joint families. The survey revealed that 30 per cent of boys and 5 per cent girls were in BPL category. 20 per cent of girls and 15 per cent boys were in low-income group *i.e.* Rs.450-860 income group. 51 per cent of boys and 34 per cent of girls were from Rs.860-1460 income group.

– The personal hygiene of adolescents was satisfactory with only 31 per cent boys and 18 per cent of girls were unclean. The morbidity pattern of adolescents' shows 29 per cent of boys and 34 per cent of girls complained of burning sensation of eyes. 24 per cent of boys and 24 per cent of girls have difficulty in reading and 51 per cent of girls and 43 per cent of boys showed dental cavities. 44 per cent of boys and 34 per cent girls were found with inflamed tonsils. 10 per cent of boys and 15 per cent of girls complained of breathlessness.

– The past health history of adolescents revealed that 7 per cent of boys and 6 per cent girls complained of measles, 5 per cent of boys and 7 per cent girls complained of typhoid, 6 per cent of boys and 8 per cent of girls complained of stomachache. A significant portion of adolescents *i.e.* 13 per cent of boys and 42 per cent of girls complained of one or more ailments. 9 per cent of boys and 11 per cent of girls complained of headache, 45 of boys and 9 per cent of girls complained of backache.

– The menstrual history of girl adolescents showed that 60 per cent of adolescents had irregular periods, 42 per cent had excessive bleeding.

– The anthropometry measurements of adolescents' revealed that they had less weight and height as compared to standards. The mean weight and height of adolescent boys in the age group of 11-14 years was 43 kgs and 157 cms against recommended 45 kgs and 157 cms and mean weight of boys in the age group of 15-18 years was 44 kgs against 65 kgs and height was 157 cms against 176 cms. The mean weight and height of adolescent girls was 42 kgs and 147 cms against 46 kgs and 157 cms in the age group of 11 – 14 years and 46

kgs and 153 cms against 55 kgs and 160 cms in the age group of 15 – 18 years.

– The BMI analysis of adolescent boys shows 38 per cent boys were malnourished (under-weight) 36 per cent were normal weight 20 per cent over weight and 6 per cent were obese. The BMI of girls' shows 36 per cent were under nourished, 40 per cent were normal weight, 20 per cent over weight and 4 per cent were obese.

– The consumption pattern of adolescents' shows that only 59 per cent of boys and 56 per cent of girls eat fruits daily. 42 per cent of boys and 48 per cent of girls eat protein rich foods like meat-chicken-fish-egg daily. 48 per cent of boys and 45 per cent of girls consume dairy products daily, 30 per cent of boys and 40 per cent of girls consume pulses and dals daily but the consumption is seasonal only in winter.

– The mean intake of adolescents showed that they were consuming less as compared to balanced diet standards. The mean consumption of cereal food like rice ranges from 192.5– 200 g for boys and 150 – 200 g for girls. The average intake of green leafy vegetables for boys varies from 62-83 g and for girls 58-75 g. The average intake of protein food like fleshy food for boys varies between 26.1–29.3 g and for girls 25–27.8 g. The consumption of dairy products like milk varies from 95–122 ml for boys and 72.5–126 ml for girls. The intake of dals varies from 42.16–47.6 g and for girls 44.5– 49.6 g.

– The RDA of both groups of adolescents was less as compared to standard value. The mean calorie intake of adolescent boys were 2160 and for girls 2050 against RDA 2500 calories and 2200 calories, respectively. The protein intake of adolescents as per their weight was normal but when compared to RDA values, it was less *i.e.* 53 g for boys and 49 g for girls against recommended 55 g and 50 g. The intake of calcium was 0.5 for boys and 0.4 g for girls against recommended 0.6 g each. Iron intake of girls was 11.37 mgs and for boys 12.06 mgs against RDA value of 18 mgs. Vitamin A was 2184 for boys and 2179 for girls against RDA 3500 each group. Vitamin B1 was 1.1 mg for boys and 1.1 mg for girls against 1.3 mg for boys and 1.2 mg for girls.

– The clinical assessment of nutritional status shows that 21 per cent of boys and 36 per cent of girls were observed with signs of anemia. 4.5 per cent of boys and 5 per cent of girls shows signs of Bitot's spot. 9 per cent of boys and 10 per cent of girls shows signs of scurvy. The food preference of adolescents shows that 12 per cent boys

and 68 per cent girls like fried foods. 13 per cent of boys and 60 per cent of girls like roasted foods, 56 per cent of boys and 63 per cent of girls like hot spicy foods.

– The school behaviour of adolescents states that 70 per cent of boys and 45 per cent of girls enjoy going to school. 45 per cent of boys and 61 per cent of girls do their work without supervision. 73 per cent of boys and 52 per cent of girls have confidence of themselves. 68 per cent of boys and 57 per cent of girls were worried about future. 37 per cent of boys and 61 per cent of girls enjoy others success.

– Home behaviour of adolescents revealed 51 per cent of boys and 63 per cent of girls are moody. 48 per cent of boys and 37 per cent of girls like to sit in isolation. 69 per cent of boys and 25 per cent of girls forget their mistakes. 37 per cent of boys and 63 per cent of girls feel easily hurt. 71 per cent of boys and 27 per cent of girls did felt to apologize after wrong doings. 65 per cent of girls and 58 per cent of boys were having problems with parents.

– Other behaviour of adolescents revealed that 71 per cent of boys and 43 per cent of girls react when others insult them. 71 per cent of girls and 26 per cent of boys were troubled by shyness. 82 per cent of girls like one friend, 89 per cent of boys like gang of friend. 93 per cent of girls and 87 per cent boys enjoy parties tours picnics and cultural activities.

– The adolescent addiction revealed that 32 per cent boys smoke. 17 per cent of boys and 20 per cent of girls use addict drugs.

– The maximum *i.e.* 81 per cent of boys and 53 per cent of girls take part in physical activities. 67 per cent of boys and 92 per cent of girls enjoy watching TV serials, films, songs and exciting programmes.

### Recommendations :

In the present study, the majority of adolescents lay behind the standard weight and height. Most of the adolescents were found to have one or more than one medical problems at present or in the past also. The diet of the adolescents were lacking in most of nutrients and with some specific nutritional deficiencies seen in the sample. The socio-psycho behaviour of adolescents shows that they have few behavioural problems and indulge in uncivilized and healthy addictions like smoking and substance abuse. So need of hour is to help adolescents through health promotion to prevent common

infections, help to select right type of food for consumption and create psychosocial awareness and support for better development. Equally it is important to exploit their potential to shape them as productive human beings for which teachers, parents, society and their peers have to play an important role. In order to set up the activities following is recommended :

– The health monitoring of adolescents whether at home or in schools is important and arrangement for “special adolescent health clinics” at periphery as a part of primary health care or school health program will go a long way in improving the health of our adolescent. Additional female health workers need to be appointed for looking after the health care of adolescent girls like menstrual problems.

– It was observed that schemes implemented by Government and NGO’s for nutrition, health care and educational development of adolescents are erratic. The prevailing situation needs attention from all corners for envisaging an appropriate evaluation and monitoring strategy towards implementation of midday or school lunch-programs to ensure proper nutrition and to correct nutritional deficiencies.

– Regular exercise is strongly associated with perceived health status, feeling confident making friends and utilizing time properly. So physical exercises should be promoted in schools and participation of all students be made mandatory so as to improve physical mental and socio psycho behavior of adolescents.

– Parents should also support their adolescents by providing equal opportunities to both boys and girls in health care and in education sector so that there will be no gender discrimination.

It is recommended that Ministry of Woman and child Development, Ministry of Social Welfare along with representatives of registered NGO’S, Medical Professionals, Policy Makers, Teachers, Lawyers, Journalists and Parents should form the special group at the national/state level to prioritize the areas of intervention and monitoring for Nutrition, Health, Education, and Socio-Psycho behaviour.

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