

## Adolescent Macro-Nutrition and Micro-Nutrition

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### ABSTRACT

Adolescence is a crucial position in the life of human beings. Nutritional demand reaches peak in this period. After go through and critically review we found malnutrition rate among adolescent is high. They have both macronutrient and micronutrient deficiency. Behavioral risk factors and peer group pressure have strong influence on food choices. Obvious difference was observed in urban, periurban and rural area. More large scale or depth study can be conducted to get recent picture.

### INTRODUCTION

Adolescence is a significant period of life. Actually it is a transitional period from puberty to adulthood. Most of the physical growth occurs in this time period. Healthy and nutritious eating during adolescence is particularly important as body changes during this time affect an individual's nutritional and dietary needs. Adolescents are becoming more independent and making many food decisions on their own. In urban area they are prone to take fast, junk and energy dense food. Many adolescents experience a growth spurt and an increase in appetite and need healthy foods to meet their growth needs. Adolescents tend to eat more meals away from home than younger children. Peer group pressure is an important determinant of adolescent nutrition. Meal convenience is important to many adolescents and they may be eating too much of the wrong types of food, like soft drinks, fast-food, or processed foods. Also, a common concern of many adolescents is dieting. Girls may feel pressure from peers to be thin and to limit what they eat. This review is an attempt to explore more on adolescent nutrition.

The United Nations' Sub Committee on Nutrition meeting held in Oslo in 1998 concluded that more data on health and nutrition of school age children are needed to assess their scale of problem. It also believed that the scale of nutritional problems may have been previously under estimated [1]. Traditionally, the main health indicator used by health planners has been mortality rates. Adolescents have the lowest mortality among

the different age groups and have therefore received low priority. However, recent studies have shown that the prevalence of malnutrition and anemia is high in these age groups [2, 3].

The recent trend of recognizing adolescent girls as a separate as well as the crucial target group is heartening. Yet, sustained efforts are needed at the national level not only to develop comprehensive and innovative programmes for this segment of our population but also ensure their effective implementation. It is expected that such a holistic approach for the development of adolescent girls will gradually improve their nutritional status as well as enhance their nutrition/health knowledge and social awareness. Equipped with skills for income generation, these girls will be empowered to make decisions regarding themselves and their family, especially the children [4].

Reports of the World Health Organization (WHO) suggest that in South East Asian Region a large number of adolescents, who constitute 20% of the population in these countries, suffer from malnutrition, which adversely impacts their health and development. Health and nutrition of the girls of today will affect the health and survival of the future generation. Adolescent girls are the mothers of tomorrow and no edifice can be built on a foundation which is so weak [5].

A study was done on Nutritional Status and Morbidity among School going Adolescents in Wardha, a Peri-Urban area and objective was to assess the nutritional status and morbidity among the school going adolescents in peri urban area Ward-

ha. They found 51.7% were underweight. Early adolescents were at highest risk of underweight significantly more 73.3% ( $p < 0.05$ ) as compared to late adolescents 26.7%. Overall 34.5% of the adolescents were stunted with boys suffering more 72.5% as compared to girls 27.5%. 28.45% of the school going adolescents had anaemia with girls suffering significantly more 38.89% ( $p < 0.05$ ) as compared to boys 23.75%. The study shows the poor health and nutritional status among the adolescents. A periodical and regular health check-up with concerted efforts towards their nutrition along with focused health education will improve the health and nutritional status of these school going adolescents in peri urban area Wardha [6].

Journal of medical nutrition and nutraceuticals published an article on "Nutritional status of school going adolescent girls in Lucknow District". The mean weight in all age groups in both urban and rural schools showed significant difference with the ICMR mean weight for respective ages except in ages 18 and 19 years in urban school girls and in ages 10 and 19 years in rural school girls. The mean height in all age groups in both urban and rural schools showed significant difference with the ICMR mean height for respective ages except in ages 18 and 19 years in urban schools and in ages 16, 17, 18, and 19 years in rural schools. Overall prevalence of thinness was found to be 17.0% and 11.4% (BMI <5th percentile according to NCHS-CDC reference) among urban and rural school going adolescent girls respectively. Overall prevalence of overweight was found to be 5.4% and 3.9% (BMI >85th percentile according to NCHS-CDC reference) among urban and rural school going adolescent girls, respectively [7].

Anthropometric assessment has to be complemented with an assessment of adolescents' eating patterns, even if this is done with a rather crude method. Food frequency questionnaires have been found valid and useful to examine eating patterns and intakes of adolescents. Through a simple tool like a context-specific food frequency questionnaire, such as developed for vitamin A10, it may be possible to identify potential dietary inadequacies in other nutrients, for instance in vitamin C, folate, iron, zinc, calcium and protein [8, 9]. The dietary inquiry is also helpful in detecting potential eating disorders. Both in cases of high or low BMIs, a rough estimation of physical activity level will help better understand the underlying factors. In adolescents, it may be interesting to rely on self-administered questionnaires to examine food habits and eating patterns, except for those who have very little schooling. The dietary inquiry is intended to provide hints of eating inadequacies or problems, and to serve as a basis for counselling and education. There is no standard dietary advice. Problems may pertain to food insecurity, which constrains access to enough food or enough variety [10]. Number of meals, and their composition, particularly

in non-staple food items, are powerful indicators of food security or insecurity, as observed at the family level. Inappropriate food choices owing to personal preference or cultural factors may be identified, with too little or too much of certain types of foods. Finally, the enquiry may reveal a risk of eating disorders, and for this, questions on body image and dieting are in order.

In the USA, overweight is integrated into routine screening of adolescents, according to the American Medical Association guidelines for adolescent preventive services [11, 12], and the suggested criteria is a BMI greater than the 95th percentile (compared to the 85th for WHO). The strategy, aimed at early detection of obesity and eating disorders, involves not only monitoring of BMI (for detection of overweight and of underweight as well), but also of dietary patterns and body image on a yearly basis, with follow-ups as required. At a recent workshop convened by the International Task Force on Obesity [13], it was suggested to use the adult indices of overweight to establish cut-off percentiles for adolescents and for children, while pursuing efforts at developing an international reference population, in order to compare the prevalence of obesity among countries. Cut-off points for grade 1 and grade 2 overweight (rather than obesity, more pejorative) would correspond respectively to BMI values of 25 and 30 in late adolescents and adults, which should correspond roughly to the 80th and 95th percentiles. However, the workshop recommended caution when using the BMI cut-off points to assess the prevalence of obesity in different populations, such as Hispanics, Asians, and other populations with a high prevalence of stunting. BMI measurement of adolescents is recommended whenever and wherever feasible, irrespective of the main type of nutrition problems to be expected, and without waiting for more specific reference data. Whether too high or too low, inadequate BMIs in adolescents should trigger an appropriate response of health-care providers.

In India, Rani and Sehgal (1995) observed that adolescent girls' intakes of energy, protein, calcium, thiamin and riboflavin were significantly higher in rural than urban areas, but that whether urban or rural, mean dietary intakes were below the recommended intakes for energy and many nutrients [14]. In most instances however, except in poor periurban areas, nutrition appears better in urban than rural areas, as in Nigerian adolescents [15].

Adolescent girls, constituting nearly one tenth of the population, form an extremely important segment of our society. These girls need special care in view of their role in shaping the health and wellbeing of the present as well as future generations. However, in India, young girls have been sadly neglected and most of them reach adolescence through years of poverty, illiteracy, ignorance and lack of adequate nutrition/health care. The ill effects of these deprivations are further aggravated by

gender discrimination - both at the household and the community level. This results in a poor nutrition and health status, besides a low social status of these girls. This situation is quite similar in Bangladesh and need to be more explore. Various studies have indicated that a large number of girls, especially the ones from rural poor communities, are either illiterate or school dropouts, and their mobility is severely restricted. Further, these girls have limited exposure to the facts of life and are often uninformed about the utilization of available services. Still there is a ray of hope as adolescence provides a unique opportunity to trap the development potential of girls through proper interventions. There is a dire need for more research in 'public' nutrition in general, and for research focusing on adolescents in particular. There is a great need not only for research, but also for dissemination of research findings. Success stories are not many in the published material on those for nutrition, and yet, they are important as a means of spreading best practices in the field. So little is known on nutrition in adolescence that research needs are tremendous. A better understanding of adolescents' diets and eating behaviors is essential.

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