Prevalence of Overweight and Obesity in Adolescent Girls in Urban Area of Muzaffarpur District of Bihar

Home Science

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ABSTRACT

Objective: To study the socio- economic factors & Dietary pattern of adolescent girls to estimate the prevalence of overweight and obesity. METHODS: Food consumption of the subjects was assessed using a 3-day 24-hour dietary recall-method. Anthropometry (height & weight) for calculating the Body Mass Index and comparing with standards . BMI = Weight(kg)/ Height(m²) Results: Study revealed that Adolescent girls eats more fast foods which are generally high in fat .62.4 % Adolescent girls likes fast food..71.2% of Adolescent girls had unsatisfactory knowledge about the healthy/balanced diet.The largest proportion of energy 70% was obtained from carbohydrates,followed by fat (20%) and protein (10%.) Overweight/Obesity was more (41.4%), among those who did not go for Exercise at all. Conclusions: Since the magnitude of overweight & obesity and its consequences are rising, and hence there is need to introduce heaIth education classes & programs regarding the benefits of

INTRODUCTION

Obesity is characterised by an excessive accumulation of body fat through an increase in the size and number of fat cells. The fat deposition takes place because over a period of time, people consume diets which provided much more energy than they were able to expend for their metabolism, physical activity and growth. The prevalence of obesity in developing countries has increased. This is because communities have emerged from a life style of subsistence towards a life style of affluence.

The higher the body weight, the greater is the risk of not only heart disease, diabetes and hypertension, but also of other diseases like gall stones, osteoarthrities and cancer. Higher abdominal fat (android) is known to be a greater risk factor than accumulation of body fat around the hips (gynoid). Android obesity is quite often associated with hypertension, hypertriglyceridemia, hyperinsulinemia and diabetes. . A positive energy balance is one of the major contributory factors for obesity. Some people are in the habit of eating too much food. They may also be ignorant about the caloric values of common foods like butter, cheese, jam or rich baked snacks and desserts, the extra helpings consumed rapidly increase the amount of calories ingested. Besides the diet per se, there are certain eating habits which may lead people to obesity, e.g. those who eat food at a very fast rate tend to chew food less and land up eating more food. Similarly, nibbling between meals may contribute significantly extra calories to the total intake than is normally realized. Also, those who tend to eat whenever food of their liking is available or those who just follow meal times even if they are not hungry tend to put on weight .

Zehra Aycan 2009 stated that Obesity develops when there is a discrepancy between energy intake and energy output. During its development the original steady-state is disturbed and after a period of positive energy balance,a new steady state at a higher level with an increase in body fat stores is achieved.

Obesity has reached epidemic proportions in India in the 21st century, with morbid obesity affecting 5% of the country's population. India is following a trend of other developing countries that are steadily becoming more obese. Unhealthy, processed food has become much more accessible following India's continued integration in global food markets. This, combined with rising middle class incomes, is increasing the average caloric intake per individual among the middle class and above income households.

While studying 22 different SNPs near to MC4R gene, scientists have identified a SNP (single nucleotide polymorphism) named rs12970134 to be mostly associated with waist circumference. In this study more than two thousand individuals of Indian origin participated and the aforementioned SNP is highly prevalent in

this group. Internationally, a BMI over 25 kg/m2 is considered overweight. Due to genetic tendency of Indians towards abdominal obesity and its associated risk of related lifestyle diseases like Diabetes & Heart Disease, Ministry of Health & Family Welfare along with the Indian Council of Medical Research released updated guidelines (in 2012) that a BMI over 23 kg/m2 is considered overweight.

According to the study, 13% of the obese people in the world are in the US and 15% in China and India — an indication of how economic progress has wreaked havoc on waistlines in developing economies.

According to the study between 1980 and 2013, the prevalence of overweight or obese children and adolescents increased by nearly 50%. In 2013, more than 22% of girls and nearly 24% of boys living in developed countries were found to be overweight or obese. Developing countries also recorded high levels of childhood obesity, where nearly 13% of boys and more than 13% of girls are overweight or obese. The Institute of Health Metrics and Evaluation defines an overweight person as someone having a Body Mass Index (BMI), or weight-to-height ratio, greater than or equal to 25 and lower than 30, and an obese person as having a BMI equal to or greater than 30.

In 2010, obesity (and being overweight) caused the death of 3.4 million people, according to study conducted by the Seattle-based Institute for Health Metrics and Evaluation. Most of the deaths were caused by cardiovascular conditions.

"Obesity is an issue affecting people of all ages and incomes, everywhere," said Christopher Murray, director of Institute of Health Metrics and Evaluation, in a press release. "In the last three decades, not one country has achieved success in reducing obesity rates, and we expect obesity to rise steadily as incomes rise in low- and middle-income countries in particular, unless urgent steps are taken to address this public health crisis," added Murray who is one of the co-founders of the study.

In India, many studies have shown that the prevalence of overweight among adolescents (10-19yrs) varies between 10% and 30%. The percentage of overweight and obesity is highest in Punjab (30%), followed by Kerala (28%) and Delhi (26%).Low levels of physical activity, watching television, and consuming junk/ fast foods are associated with a higher prevalence of overweight . To cope with the fast, competitive modern life style, toady's adolescents are busier with activities related to brain than physical for better scholastic performance. The food instead of right nutrition is becoming a source of taste, entertainment& to cover-up their busy schedule. The trend of taking fast foods / junk foods among the adolescents increasing along with restricted physical activities

The dietary modification serve as a guide for the obese to make healthy food choices. The daily diet plan should have an energy deficit of 500-1000kcal in general.It is safe to use moderate deficit diets providing 1200-1400kcals/day. Low calorie and very low calorie diets must be used under strict medical care for limited periods. Adequate amount of proteins should be included in the diet to ensure proper metabolism and prevent weakness which is usually experienced by patients after weight loss which is achieved by consuming an unbalanced diet.   Protein rich foods provide a higher satiety as compared to those rich in carbohydrates (other than non-starch polysaccharides). Around 20% of the total energy should be provided by proteins. The diet should not provide more than 15% to 20% of the total energy from fat . The visible fat intake can be curtailed by avoiding fried food, using non-stick cookware/micro-wave or cooking food by roasting, grilling and baking (dry heat). Butter, cream, pure ghee should be avoided and vegetable oils rich in MUFA's/PUFA's (low in SFA's) such as olive, safflower, corn, sunflower be used in limited amounts. Emphasis should be laid on the consumption of foods rich in non-starch polysaccharides. The obese person may be at risk of developing deficiencies of fat soluble vitamins. Thus, care must be taken to ensure adequate intake of vitamin E (green leafy vegetables,almonds etc.), B-carotene (yellow and orange coloured fruits/vegetables) and vitamin D (sunlight, oils fortified with vitamine A/D).

  According to FAO/WHO (2004), preventing weight gain after substantial weight loss probably requires 60-90 minutes of moderate intensity exercise per day. A total of one hour per day of moderate intensity activity, such as walking everyday is required to maintain a particular stable weight for individuals with sedentary life-style.

MATERIALS AND METHODS:

It was a cross sectional study carried out in government girl's colleges of Muzaffarpur district, Bihar. The study was designed to include all eligible aged 16-18 years non pregnant, unmarried college girls. Ethics approval was received from the college of-ficials. The study was undertaken in the month of May 2014. 152 girls were selected randomly for the study. Information on socio-economic conditions, dietary intake, food habit and knowledge about the food which increase weight was obtained with pre-tested questionnaire. Food consumption of the subjects was as-sessed using a 3-day 24-hour dietary recall method.

- Anthropometry (height & weight) for calculating the Body Mass Index and comparing with standards. It is a measure of relative body fitness and can be computed by using weight (kgs);(minimal clothing) and height (meters,without shoes).

$$BMI = Weight(kg)/Height(m^2)$$

Weight status according to BMI range

Classification	BMI (Kg/m^2)
Underweight	<18.5
Normal range	18.5-24.9
Overweight	>25.0
Pre Obese	25.0-29.9
Obese Class I	30.0-34.9
Obese Class II	35.0-39.9
Obese Class III	>40.0

Source: WHO,1996.

Results:

Study revealed that majority of the respondents 41% belongs to middle cast, 36% belongs to high cast and only 23% were from low caste. Maximum number of families 52% had medium size followed by 41% and 7% had large and small size respectively. It is evident that majority of the respondents 57% belonged to income group earning from Rs. 40,001 to 50,000. 42% having monthly income of Rs 50,001 & above and 15% respondents hav-ing monthly income 30,000- 40,000.

A detailed and relevant history of 152 study cases revealed that 58% girl students were non-vegetarian and 42% were vegetar-ians. 62.4% Adolescent girls likes fast food. Adolescent girls eats more fast foods which are generally high in fat . Improper edu-cation and dearth of awareness among mothers results in poor health of adolescents. 71.2% of Adolescent girls had unsatisfac-tory knowledge about the healthy/ balanced diet. The intake of cereals and millets was 34.3% more than their respective RDA. Roots and tubers intake was double than their respective RDA. Adolescent girls take 50% less amounts of green leafy vegetables . The intake of other vegetables and fruits was 5% less than the RDA. A substantial proportion of the girls did not take milk than their respective RDA.. The largest proportion of energy 70% was obtained from carbohydrates,followed by fat (20%) and protein (10%.) Mean intake of iron was half of the RDA. Overweight/ Obesity was more (41.4%), among those who did not go for Ex-ercise at all. It was found that Obesity/overweight is higher(38%) among those who Watched TV / Used Computer >=2 hours/ day. Out of 152 adolescent girls 36% were overweight, 17% were obese and 47% were of normal weight.

Conclusions:

The prevalence of overweight and obesity along with under-weight among adolescent girls indicates that Bihar is facing double burden of diseases and prevalence of obesity is increas-ing year by year. Adolescent girls suffer a very high burden of nutritional deficiency; but the prevalence of overweight and obesity are also on the rise. Adolescent girls have worst eating habits.They skip a meal or they eats fast/junk foods which are rich in calories and short on essential nutrients . Sedentary life style with lack of an exercise schedule tends to make adolescent girls overweight and obese. Since the magnitude of overweight & obesity and its consequences are rising, and hence there is need to introduce heaIth education classes & programs regarding the benefits of healthy diet & physical activities in adolescent girls.

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