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A study on childhood obesity and its dietary management

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Abstract

Obesity has become an epidemic problem worldwide, and in India. The status of overweight has reached an alarming level. Obesity is invariably a product of energy imbalance in the body. Energy imbalance refers to imbalance between energy intake and energy output. In consumption of more food (energy rich) and do lesser work it would result in energy imbalance in the body. In previous studies, a marked increase in obesity generally has been noted among adolescents, ranging from 15% to 45%. Several factors, such as change in dietary habits, lack of physical activity and spending more time in watching Television and computer determine obesity in this age group. There is an urgent need for national program to prevent and control obesity in the country. bad from the point of view of body appearance only, while others may think only in terms of reduced work capacity or inability for active participation in sports or other such activities. Obese individuals are more at a risk of developing heart diseases or diabetes mellitus. Obesity hedge become one of the major health problems in children and it is associated with several chronic diseases.

Keywords: obesity, physical activity, food habits

1. Introduction

The prevalence of obesity is increasing worldwide although the proportion varies from country to country and between geographical areas within a country. Changes in lifestyle, dietary habits, physical activity and the social and cultural environment are associated with the occurrence of obesity. Many chronic, non-communicable diseases are positively associated with obesity, type 2 diabetes mellitus in particular, hypertension, some forms of cancer and cardiovascular disease. Therefore, prevention and control of obesity can play an important role in reducing the risk for chronic diseases. Childhood obesity is one of the most common disorders and among the most frustrating and difficult to manage. Obesity refers to being fat or having excess fat tissue. This study highlights the current situation of childhood obesity in Aligarh.

A child is considered obese when there is excess accumulation of fat in the subcutaneous tissues and other parts of the body. Obesity is caused by an imbalance between calories intake and calories output, these excess calories are converted into fat and stored in the body.

The term obesity is used when the weight exceeds 120% of the standard weight. The body Mass index (BMI) is defined as weight 1 height 2 (in kg. per m²) is the most useful index for screening populations of young children and adolescents. It correlates significantly with subcutaneous and total body fat in adolescents.

Most of us do not consider it as a serious disorder. Some of us consider it Upper body obesity (excess fat around the waist and the flank) is greater health hazard than the lower body obesity (fat in thighs and buttocks). Obese patients with increased abdominal circumference (> 102 cm in men; >88 cm in women) or with high waist-hip ratios (> 1.0 in men; > 0.85 in women) have a greater risk of diabetes mellitus, stroke, coronary artery disease and early death than equally obese patients with lower ratios. Shortly, BMI ranges in adults),

- Acceptable range 18.5-24.9
- Overweight 25.0-29.9
- Obese 30.0-39.9
- Morbidly obese > 40

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Change in Dietary Habits

Food consumption patterns and dietary habits in children have changed markedly during the past 4 decades. There has been an increase in per capita energy and fat intake in all countries. Data from the food balance sheet showed an increase in calories consumed in the countries of the children of this school and a high percentage of these calories came from animal foods. Over the same period, daily per capita fat intake showed notable increases. It is probable that the high consumption of foods rich in fats and calories and the sedentary lifestyle among most communities played an important role in the rise of obesity. This is particularly true with the great shift from traditional foods to more westernized foods, which are characterized by high fat, high cholesterol, high sodium and low fiber.

Socio-demographic Factors

Obesity is more prevalent in the children who belonged to urban areas and those of higher socioeconomic status. In general, obesity in this Region was found to be more prevalent in people who were young (30-50 years), better educated, currently married, female or unemployed, and in those who watched television more than 2 hours per day, consumed fresh fruit less than 3 times a week.

Lack of Physical Activity

Changes in lifestyle and socioeconomic status in these children have had a significant effect on physical activity. With the availability of cars, the increase in electrical home appliances and more involvement in school work, life has become more sedentary, and the pattern of practicing exercise has diminished steeply in most of the children

Other Factors

There are many other factors, such as home environment, school environment, beliefs and attitudes, lack of health awareness and cultural conditions, which may be linked with obesity. Television advertising, long periods watching television and using the internet, high intake of fast foods, and increase in food intake outside the home have also been reported to be associated with obesity among children and adolescents in some countries in the region.

Risk Factors

There are several factors which favor the development of such an imbalance in the body. These factors are termed as risk factors.

1. **Overeating:** Eating too much and away from home is becoming more common. The increasing popularity of fast food is partly due to the fact that more women are today venturing out to work. So, there is less time available for elaborate food preparation. Hence, children today are more prone likely to consume fast food items like noodles, butter, cakes, pizza, burger and French fries frequently. Also jam, jellies, wafers and other rich snacks and desserts also cause weight gain. Eating habits (e.g., eating in between meals, preference to sweets, refined foods and fats) are established very early in life. Some people prefer to eat less during the meal time, but keep on munching snacks in between meals. Consumption of these items puts the children at risk of developing obesity due to high energy density of such foods. Research shows that the children who consume fast food have diets poorer in nutritional quality as compared to those who eat fast food less frequently. The snacks are generally more preferred by children and mothers specially working women,

as they are easy and quick to prepare. Increased soft drink consumption not only provides empty calories but also puts an individual at risk of nutrients deficiencies. These soft drinks displace more nutritious beverages like milk and fruit juices from the diets of children. This can lead to deficiencies of calcium and vitamin C apart from being linked to childhood obesity.

Sedentary Life-style fallouts

Besides food intake another factor which influences the energy balance of the body is activity pattern. In urban areas, especially affluent or rich class children tend to have a sedentary lifestyle. There are many sedentary pursuits available today such as television, video games, computers and internet leading to physical inactivity. Children today spend more time in such passive behaviors such as prolonged T.V. viewing, working or playing games on the computers, surfing internet, talking on telephone etc. all these activities contribute to the development of obesity by displacing physical activity and energy expenditure. Besides, while pursuing such passive activities, children often also indulge themselves in frequent snacking and overeating. Often children spend their time in front of TV eating high fat, high sugar foods such as chips and chocolates. Children watch TV advertisements promoting and campaigning by celebrities. This excites and influences the children. Children and youth undergo a lot of stress due to presence of studies and their parent's high expectations. In a stressful situation or when emotionally upset, many of them resort to bring eating excessively in order to suppress their feelings. This habit leads to overweight.

Psychological Factors

Familial tendency of obesity and some psychological factors play important role in causing obesity in children. Some children tend to eat more if they are tensed or bored or lonely. Such conditions make food as the focus of their attention and a means or outlet for release of tension and boredom. Overweight affects the psychological health of the children leading to poor body image, lower self esteem, and chronic rejection from peers, sadness, depression, loneliness and lack of confidence. Obese and overweight children may find it difficult to perform single day to day activities as overweight reduces a person's efficiency. They may also suffer from health problems like asthma. Obesity adversely affects the academic performance of an individual and may thus, be a threat to one's career. According to the International journal of obesity, 2002, it has been estimated 40-70% of obese children and youth go on to become obese adults. We should take childhood obesity more seriously than adult obesity because lifestyle habits leading to obesity are imprinted right in the childhood. Once an obese child will become an obese adult, it is extremely difficult to correct those ingrained habits.

Genetic Influence

Obese parents do tend to have obese children. This fact has been brought into focus by many research investigations. In one of study, it was found that if both parents are of normal weight, the probability is 7% of the children will be obese. On the other hand, if one of the parents is obese, the possibility is that 40 % of children will be obese. If both the parents are obese, the chances that children will be obese goes upto 80 %.

Dietary Management in Childhood Obesity

1. **The modified nutritional needs:** The modifications are needed in the amount of energy, protein, carbohydrate, fat,

vitamins and minerals for obese individuals.

2. Dietary modifications: Following points are to be taken into consideration for dietary management of obesity.

- Cut down intake of fat and fat-rich foods: Restrict the intake of visible fat. Avoid giving ghee, butter or fat-rich foods like meats, cakes, pastries, fried snacks, nuts and oilseeds.
- Give more of protein-rich foods: Milk (toned milk or whole milk from which cream has been removed), pulses, lean meats, chicken, fish.
- Give more of leafy vegetables and yellow orange fruits: They provide the basic protective and regulatory nutrients.
- Give more fiber-rich foods: Whole cereals, pulses, fibrous fruits and vegetables. Fibrous foods have more satiety value and hence tend to satisfy hunger and at the same time provide less energy (calories).
- Prevention should begin in early childhood. Following are some tips for the children to start off on the road to a healthy future:
 - a. Start your day with good breakfast to keep up the energy levels. Children will be alert and energetic throughout the day and able to concentrate better on their studies.
 - b. While eating out, steer clear of soft drinks especially cola and other aerated drinks as they have very high sugar content and provide empty calories. Instead, go for fruit juices and milkshakes.
 - c. For those who have sweet tooth and love gorging on sweets, can have fruit custard and fruit salad instead of sweets and chocolates.
 - d. Fatty foods prolong digestion and make the children sluggish and lethargic. So, while eating out, eat more of salads and soups.
 - e. Eat lots of fruits and vegetables for adequate intake of vitamins, minerals and fibers.
 - f. Avoid nibbling in between meals. Eat small and frequent meals rather than three large meals. There should not be too much gap between two meals.
 - g. Avoid combining eating with any other activity like reading or watching TV.
 - h. Instead of samosa, chips, cream, biscuits, pick up a fruit like apple, pear or banana when you feel like hungry.
 - i. Eat slowly and chew your food properly. This will not only aid in digestion but the child will also eat less.
 - j. Fried, fatty or French foods can be eaten once in a while for a change but should not be a part of regular diet.
 - k. Parents should read food labels while buying a food product.
 - l. Avoid oily and fatty dressings like mayonnaise on salads. Instead use whipped curd, lemon juice with salt, pepper or chat masala.

Methodology

This study was carried out on 100 diagnosed cases of childhood obesity in the Aligarh Public School, Aligarh with the help of a Physician of Tibbiya College Hospital (OPD), Aligarh. Children suffering from obesity belonging to either sex or different age groups were selected for the study. A weight-for-height of greater than 2 SD of NCH data ($> + 2 z$ scores) or above 95th percentile is suggestive of obesity. There is no standard definition for obesity in children. Following points were considered for the selection.

- Only diagnosed cases of childhood obesity by experts in their respective OPD's were included in this study.
- Patients were not interpreted for their treatment

- Age variation
- Sex variation
- Duration of disease variation (congenital or acquired)
- Site of accumulation/ distribution of fat

Patients were thoroughly interrogated for their personal history, socio-economic strata, condition of the housing, their dietary pattern and their family history of similar illness (obesity).

The study was performed on a set Performa. All the cases were informed about the study, the expected benefits of the dietary treatment, the hazards and the future complications of the disease, the precautionary measures to be used and no concomitant treatment was allowed. The following approach was made to carry out this study.

1. Detailed History: The history of the cases was recorded in detail. The name, age, sex, religion, occupation of the parent's, food habits and address were noted down. Patients were also asked about complaints with their duration. Other points like family history of obesity or constitutional obesity and treatment history were also noted.

2. Physical Examination: General appearance, height, pallor, icterus, cyanosis, edema, gait, decubitus, Lymph nodes and nails were checked for all the cases. Vital signs were recorded regular. The site of distribution of the fat in the body was observed either in the abdomen only or generalized obesity in case of constitutional (familial) obesity.

3. Investigations: In our study, no investigations were done. Only clinical diagnosis on the basis of clinical features was sufficient in childhood obesity to ensure better diagnosis.

Observations, Results and Discussions

Table 1: Distribution of Patients According to Age and Sex

Age Group (in years)	No. of patients		Percentage
	Males	Females	
5-8	30	20	50
8 - 12	20	10	30
12- 15	10	10	20
	60	40	100

In this study, the patients were divided into three groups i.e., 5-8 years, 8-12 years, and 12-15 years. It was observed that maximum number of cases i.e., 50 cases (50%) belonged to age group 5-8 years, 30 cases (30%) belonged to the age group 8-12 years and 20 cases (20%) belonged to the age group 12-15 years.

Table 2: Distribution of Patients according to the Occupation of the parents

Occupation	No. of patients	Percentage
Service	37	37
Business	34	34
Others	29	29
	100	10

All the cases selected for the study were divided into three groups according to their occupation viz., service, business and others. The number of cases falling in each group were 37 (37%), 34 (34%) and 29 (29%) respectively. Thus, it was observed that maximum number of cases belonged to the children whose parents were in service category. This indicates that rich people and service people's children can suffer more from this disease.

Table 3: Distribution of Patients According to Food Habits

Food Habits	No. of patients	Percentage
Vegetarian	26	26
Non-Vegetarian	74	74
Total	100	100

In this study, the patients were divided into two groups according to their food habits. It was observed that 26 cases (26%) were vegetarian and 74 cases (74%) were non-vegetarian. This indicates that the occurrence of the disease is more in non-vegetarian children.

Table 4: Distribution of Patients According to Residence

Residence	No. of patients	Percentage
Rural	25	25
Urban	75	75
Total	100	100

According to residence, all the cases were divided into two groups viz. rural and urban areas. It was observed that 25 cases (25%) and 75 cases (75%) belonged to rural and urban areas respectively. In urban areas, availability of fast foods and snacks and role of media and TV are the important factors in the causation of this disease.

Table 5: Distribution of Patients according to positive Family H/O Obesity

Family History	No. of Patients	Percentage
Present	57	57
Absent	43	43
Total	100	100

While carrying out this study, all the cases were divided into two groups according to presence and absence of family history of obesity. It was observed that family history of obesity was present in 57 cases (57%) and absent in 43 cases (43%). Family history plays an important role in the causation of the disease.

Table 6: Distribution of Patients according to H/O Drug(s) Intake

Drugs	No. of Patients	Percentage
Antibiotics	24	24
Antiallergics	36	36
Antacids	30	30
Antimalarials	10	10
Total	100	100

The patients were divided into 4 groups according to history of drugs intake. It was observed that there was positive history of intake of drugs viz. 24 cases (24%) of antibiotics, 36 cases (36%) of antiallergics, 30 cases (30%) of antacids and 10 cases (10%) antimalarials. H/o drug intake is an important cause.

Table 7: Distribution of Patients according to Previous Treatment

Previous Treatment of Obesity	No. of Patients	%
Present	23	23
Absent	77	77
Total	100	100

In this study, the patients were categorized into the presence and absence of previous history of treatment. It was observed that 23 cases (23%) had the previous history of treatment whereas 77 cases (77%) had not the previous history of treatment.

Table 8: Distribution of Patients according to the Mental Status

Mental Status	No. of Patients	Percentage
With Stress	55	55
Without Stress	45	45
Total	100	100

In this study, the cases were divided into two groups according to the mental status. It was observed that in 55 cases (55%) stress was present and absent in 45 cases (45%). Children of obesity were found in severe stress and depression.

Table 9: Distribution of Patients according to Socio-Economic Status

Socio-Economic status	No. of Patients	Percentage
Lower Class	40	40
Middle Class	36	36
Higher Class	24	24
Total	100	100

All the patients were divided into three groups according to their socio economic status viz., lower class, middle class and higher class. The number of patients in each class were 40 (40%), 36 (36%) and 24 (24%) respectively.

Table 10: Distribution of Patients according to type of Foods

Type of foods they like	No. of Patients	Percentage
Homemade foods	34	34
Market items	66	66
Total	100	100

According To the likeness of the foods, all the cases were divided into two groups. It was observed that the home-made foods were liked by only 34 cases (34%) and the market items like snacks, chocolates were liked by most of the children i.e., 66%. This indicates clearly about the cause of occurrence of this disease.

Table 11: Distribution of Patients According to Complaints (clinical features)

Complaints	No. of patients	Percentage
Increased appetite	46	46
Excessive feeding habits	55	55
Weight gain	70	70
Lazy lifestyle	65	65
Increased height	36	36

In this study, it was observed that the 46 cases (46%) showed increased appetite as the cardinal clinical feature. While 55%, 70%, 65% and 36% cases complained about increased appetite, excessive feeding habits, weight gain, lazy lifestyle and increased height respectively.

Conclusion

Obesity is a difficult condition to treat, this problem is not just about lack of nutrition education or inadequate will power. Parents are understandably frustrated with the situation of having an overweight child, and the logical target of this frustration is the child. As a society, we need to address this dangerous cycle of helplessness and blame. We cannot simultaneously endorse relentless marketing of unhealthy foods aimed directly at children and their parents and then turn around and blame overweight children and their parents for having eaten those foods.

References

1. Gupta RK. Nutrition and the Diseases of Lifestyle In:

- Bhalwar RJ, editor. Text Book of Public health and Community Medicine. 1st ed. Pune: Department of community medicine AFMC, 2009, 1179.
2. Bhave S, Bavdekar A, *et al.* IAP National Task Force for Childhood, Prevention of Adult Diseases: Childhood Obesity. IAP National Task Force for Childhood Prevention of Adult Diseases: Childhood Obesity. *Indian Pediatr.* 2004;41:559.
 3. Laxmaiah A, *et at.* Factors affecting prevalence of overweight among 12- to 17-year-old urban adolescents in Hyderabad, India. *Obesity (Silver Spring).* 2007;15:1384-90.
 4. Chhatwal J, Verma M. Obesity among pre-adolescent and adolescents of a developing country (India) *Asia Pac J Clin Nutr.* 2004;13:231-5.
 5. Anderson PM, Butcher KE. Childhood obesity: Trends and potential causes. *Future Child.* 2006.
 6. Ghosh A. Explaining overweight and obesity in children and adolescents of Asian Indian origin: The Calcutta childhood obesity study. *Indian J Public Health.* 2014;58:125
 7. Nawab T, Khan *et al.* Influence of behavioural determinants on the prevalence of overweight and obesity among school going adolescents of Aligarh. *Indian J Public Health.* 2014;58:121.
 8. Davison KK, *et al.* Childhood overweight: A contextual model and recommendations for future research. *Obes Rev.* 2001;2:159-71.
 9. Patrick H, Nicklas T. A review of family and social determinants of children's eating patterns and diet quality. *J Am Coll Nutr.* 2005;24:83-92.
 10. Chapman G, Maclean H. "Junk food" and "healthy food": Meanings of food in adolescent women's culture. *J Nutr Educ Behav.* 1993;25:108-13.
 11. Dublin: Department of Health and Children; 2005. Department of Health and Children. Obesity: The policy challenges: The report of the national taskforce on obesity.
 12. Budd GM, Hayman LL. Addressing the childhood obesity crisis. *Am J Matern Child Nurs.* 2008;33:113-7.
 13. Lundstedt G, *et al.* eating disorder traits in obese children and adolescents. *Eat Weight Disorder,* 2006.