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## Childhood obesity: Determinants, its causes and preventive aspects

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### Abstract

The rising trend of obesity is a worldwide observable fact affecting both, the developed and developing countries on the globe. Obesity has spearheaded into all walks of the life irrespective of their age, social-economic groups, sex or ethnicity. When it comes to the childhood obesity there are different / vast number of reasons attributed for it which includes dietary habits, lack of physical exercises, environment, socio-economic status, age, sex, Familial tendency, and endocrine disorders. The problem of obesity leads to chronic diseases which affect the bones, heart, lungs, etc. Keeping in mind the gravity of the problem as it is becoming a major concern in India, we need to take appropriate steps for the healthy lifestyle of our future generations. Treating obesity in children requires seriousness in addressing different issues related to obesity amongst the parents and children at school along with scientific weight management programmes at various stages of child development before it becomes a grave problem in India.

**Keywords:** Obesity, calories, liposuction, rhinoplasty, botox, Bmi, hyper-cholesterolemia

### Introduction

Human beings are more cautious about their looks and in order to present themselves in front of others as the most beautiful/ handsome and physically attractive in terms of their bodily features they are spending a hefty amount of their bucks just to give deadly looks through various means like liposuction, rhinoplasty, tummy tucks, breast implant with the help of Botox, shaping of buttocks and face lift etc. But down the lane we forget a very important group of our society whom we consider as the future of this nation, and they are the real assets. They need to be provided more attention towards their health. They are non-other than the children of our nation. Whereas, when it comes to shaping of your bodily features we must understand the game of calories first as to why an individual gains so many extra pounds. An individual whose energy intake and expenditure are equal than the person neither loses the weight nor does he gains i.e. (weight maintenance) but if the energy intake is less than energy expenditure than a person will lose weight and if energy intake is more than energy expenditure than he/she will gain weight. This can be depicted with the help of the following equation:-

Energy Intake = Energy Expenditure = Weight Maintenance

Energy Intake < Energy Expenditure = Weight Loss

Energy Intake > Energy Expenditure = Weight Gain

Thus obesity results from excess consumption of calories/energy than they burn (expend) over an extended period of time. These extra calories are stored as fat. Thus, impact the health of an individual. Globally, children in particular are gaining weight which tracks into adulthood thus increasing the risk of adult diseases. Here, it becomes very important for us to know as to where India stands globally amongst top 10 countries ranked by number of obese people in 2013, in millions, below is the fact sheet given (a study shows) by The Wall Street Journal.

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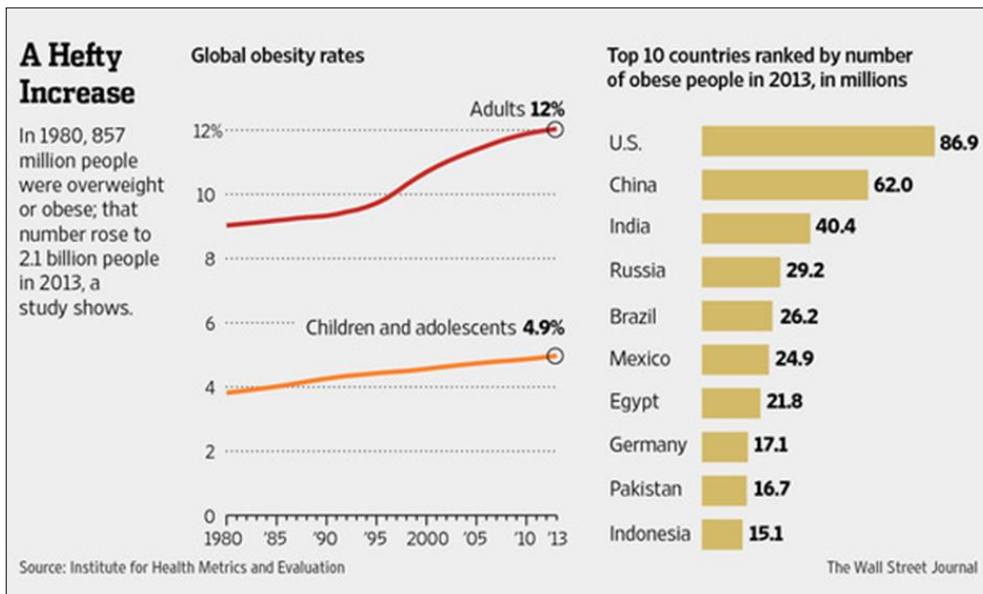


Fig 1: Global obesity rates

Here, India with a large chunk of population is placed 3<sup>rd</sup> in top 10 obese countries with 40.4 million people. Obesity is an issue affecting people of all ages and incomes, everywhere, said Christopher Murray, director of the University of Washington Institute for Health Metrics and Evaluation, who helped collate the data for the period 1980 to 2013. In Delhi alone, 24.2 percent of school children were found obese in a recent study done by Diabetes Foundation of India. And closer homes most affluent schools in the twin cities of Mumbai and Pune find close to 50 percent of their students obese.


parent/working mothers contributes more in development of eating outside habits.

A report from America suggested a strong link between sugars sweetened beverages and prevalence of child hood obesity. Sugar sweetened beverages are high in calories but nutrient poor and this is often coupled with consumption of salty and high fat food choices. With changing dietary trends due to westernization and globalization there is more frequent consumption of these sweetened beverages even at young ages. In a latest findings of the study by Margaret C. Campbell, a professor of marketing at Leeds School of Business at the University of Colorado at Boulder and the lead author of the study underscore how fat cartoon characters, ubiquitous in children’s books, movies, television, video games, fast-food menus and graphic novels may influence children’s behavior in unforeseen ways, especially when it comes to eating. Researchers first randomly showed 60 eighth graders a svelte jelly-bean-like cartoon character/round character and gestured towards bowls of Starburst candies saying “you can take some candies”. Children who had seen the round cartoon character helped themselves to more than double the number of candies as children shown the lean character, taking 3.8 candies on an average, compared with 1.7 taken by the children shown the lean bean character. In a separate experiment researchers discovered that by activating children’s existing health knowledge can counter these effects. As the children who were asked about healthy habits before doing the taste test ate fewer cookies (3 cookies), even if they had first been exposed to the round cartoon character than those asked about healthy habits after the test ate (4.2 cookies). Children who saw the normal weight character and who were asked about healthy habits after the taste test also ate about 3 cookies. All of us respond to environmental cues that may prod us to over eat and this is one reason you don’t want the television on when your kids are eating. There are things on television that are influencing children’s choices and they should be made aware at the earliest regarding the do’s and don’ts.

## OBESITY STATISTICS

Over the past 4 decades:

- Quadrupled among children ages 6-22 yrs.
- Tripled among adolescents ages 12-19 yrs.
- Doubled among children ages 2-5 yrs.
- Today nearly 23 million children and teens are either overweight or obese.
- Obesity strongly associated with cardiovascular disease risk, hypertension, type 2 diabetes, and dyslipidemia.



**NUTRILIFE HEALTH MANAGEMENT**

Fig 2: Obesity statistics

### Determinants of Childhood Obesity

- **Dietary Habits**

Increased consumption of more energy dense, nutrient-poor foods (low in proteins, vitamins, minerals and other healthy micronutrients) with high levels of sugar and saturated fats have led to an increase in obesity rates among children of India. Obesity is more common in those children who frequently ate out and those who replaced their meals with high-calorie foods/snacks/fast-food/cold-drinks at the nearby market or the school canteen. Reliability of children on pre-prepared food in families where there are single

- **Physical inactivity**

The trend of physical inactivity is on rise, not just in adults but also amongst children / adolescents because of the revolution in the field of technological developments and due

to increased mechanization people prefer driving to cycling or walking even to short distances and use of labour saving devices at home has made children lazy bombs, they have easy access to watch television, play games on the computer for hours continuously contributing to a child becoming couch potato rather than spending their valuable time in physical activities/ playing out door games as it has a direct correlation to increase obesity amongst children. C.B.S.E. fact sheet reported only 30% of adolescents played regularly for one hour a day and 70% spent 1 to 4 hour/day viewing television or sitting at the computers. Finally, the latest influence on childhood obesity has been that of mass media with deliberate, and sometime unethical, marketing strategies targeted at children.

- **Built Environment**

The behavior of children and adolescents in relation to their diet and physical activity is guided by lots of factors which also constitute our built environment are, our family, educational and faith based institutes, amusement activities, crutches, media and food and drink markets etc. As a result of increased industrialization and urbanization energy intake has become more in children as compared to their energy expenditure leading the way to increased obesity in them. The influential role of a family habits, peer group habits and media is reflected in the food habits of children, for example when you visit Big-Bazar / Easy Day / Reliance Fresh (Supermarkets) you find candies / chocolates etc. on their cash counters as a promotional strategy called "impulse marketing" which encourages emotional related purchases that are triggered by seeing a product or a related message at prominent places. They comprise of about 30% of all supermarket transactions The decisions at the eleventh-hour purchase are made in haste and automatically without substantially cognitive input. Sorry to say, that such choices are usually more in relation to food which is high in fat and sugar rather than healthy food for instance fruits and vegetables or whole grain cereals which require more brain wave. These marketing strategies in a job are used to add to sales, in relation to public health and limit the types of food that can be displayed in important locations and move food which could advance chronic diseases, to sites that require some attempt in finding out.

- **Socio-Economic Status**

Children from upper socio-economic strata are more likely to be obese than children from the lower socio-economic strata. Socio-economic trends in childhood obesity in India are also emerging. A study from northern India had reported the prevalence of childhood obesity with 5.59% in the upper socio-economic strata as compared to 0.42% in the lower socio-economic strata. Marwaha in his study has also classified children as normal, overweight and obese and showed that in the upper socio-economic status prevalence of overweight and obesity was 17% and 5.6% in boys and 19% and 5.7% in girls, whereas when it comes to the lower socio-economic status it was 2.7% and 0.4% in boys and 2.1% and 0.5% in girls.

- **Genetic Factor**

Those who have genes of fatness their chances of becoming fat are more. So, parent's obesity is considered to be a stronger predictor of obesity and even identical twins sent in different environment, but still they have almost equal amount of fat in their body.

- **Age**

It can occur at any age but generally it increases at the age of 9 month. Also, if you have over weight child than there are more chances of him/her to develop into an obese adult.

- **Sex**

Men usually gain weight at the age of 29-30 years whereas females gain weight at the age of 45-49 years.

- **Familial Tendency**

Everyone in the family is obese it clearly shows a familial tendency. It was demonstrated by Avon Longitudinal Study that the odds of children aged 7 becoming obese if the father, mother or both of them are obese than it leads to dominant influence of parental obesity.

- **Endocrinal Disorders**

Disorder of the growth hormone release is less.

### Effects of the Obesity

- Child hood obesity is fast emerging as a global dilemma as the medical danger of obesity tends to increase with age and gets carried into adulthood. There are numerous psychosocial problems associated with obesity in children and adolescents. These include depression, low-self-image, poor body image and adjustment difficulties leading to social isolation that prevent them from active sports participation and social gatherings. Thus hampering his/her overall growth and development. This stress could act as a hindering factor with their learning and it lead to depression, anxiety and emotional instability among children.
- Leads to the hypertension.
- Endocrinal disturbances.
- Hyper-cholesterolemia, cholesterol content in blood is more, it is over 200mg/100 ml. of blood.
- Coronary artery (artery supplying blood to the heart) disease.
- More chances of diabetes (disease in which sugar and starch are not properly absorbed by the body).
- Disease of joints especially lower limb as they have to bear heavy weight i.e. destruction and arthritis of joints.
- Sleep disorders.
- More chances of Hernia(protrusion of part of organ through walls of cavity)
- Osteoarthritis (degenerative disease of the joints.)
- Increase in mortality (20% more chances of obese dying suddenly)
- Excess of 10kg of body weight decreases 5years of life span.

### Prevention

There are numerous childhood obesity intervention programs which can prevent the children from getting obese but it should start right from the newborn period at different levels (individual, community and physician).

- Dietary changes (adopt a diet that should contain all the nutrients in balanced form rich in calcium and fiber in recommended quantities of fruits and vegetables along with limiting consumption of energy dense food).
- Prevent excessive sweets, chocolates, junk foods, aerated drinks and carbohydrates consumption.
- Encourage physical activity in the form of active group games like basketball, swimming, football, badminton,

and tennis in schools.

- Make child friendly walking and cycling paths.
- Reduce the duration of daily T.V. watching and playing games on computer (not more than 1 hour per day).
- Effective control of weight in childhood.
- Early detection and treatment of endocrine disorder.
- Spread awareness amongst masses.

### Conclusion

Trend of obesity is increasing in India at an alarming rate and effective preventive measures are needed to counter this increasing trend of obesity in India. We must take appropriate steps in this direction so that its onset can be prevented. Preventive measures for childhood obesity should be addressed properly with the help of qualitative research in the concerned field by presenting a fact file about childhood obesity among various strata keeping in mind the Indian setting. Public Health Department should implement strict policies which are developed keeping in mind the children at large to overcome the problem of obesity in our country. Childhood obesity has become a reality in India and we should timely wake up from our sleep so that it is nipped in the bud.

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