

# Prevalence and Associated Factors of Obesity among Adolescents

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## Abstract

The rapid growth in the epidemic of obesity has been a major health concern worldwide. Obesity in adolescent is the repercussion of childhood obesity. It is considered as a serious, long-term (chronic) disease. There has been an intense rise in the health care costs as compared to the previous decades due to obesity amongst children & adolescents. Overweight and obesity refer to having too much body fat. The causes for rise in obesity could be various like high intake of calorie food, lack of physical activities, etc. The aim of this research was to find about the awareness of obesity among the adolescent group and causes contributing towards it. The research has further objective to find out the extent of awareness in adolescents, about the basic nutrients contributing to the balanced diet. The data was collected from the group of adolescents, where the percentage of overweight is rapidly increasing. Prevention may include primary anticipation of overweight or obesity, healthy diet and exercise.

## Keywords:

health risks of excessive body fat are associated with increase in body weight, resulting in obesity. Adolescent obesity may further have complications related to job placements, marriage, especially in girls.

In summary, the childhood and adolescent obesity may cause several physical and psychological problems. It is a concern for public health hazard and needs to formulate strategies for its prevention. Due to this reason, the experts in medical profession and the policy maker authorities are paying increasing attention to it.

However, the best metric to measure obesity has always been somewhat debatable to the nutrition experts. Body mass index (BMI) which relates weight to height, with standardized categories has been recommended by the World Health Organization (WHO) and it is now used worldwide as a metric to check obesity. BMI categories include overweight and obese. Overweight for an adult is defined as having a BMI of between 25.0 and 29.9, while an adult is considered to be obese with a BMI of 30.0 and greater

## 1. Introduction

One of the most common concerns related to today's lifestyle is being overweight and obese. The prevalence of overweight and obesity has increased in all parts of the world among children and adults alike. Due to this the problems related to obesity which were commonly found in adults are becoming very common in adolescents. Obesity is a major factor contributing towards many chronic disorders such as heart and respiratory diseases, Type 2 diabetes, hypertension and some cancers. This has increased the mortality rate in many developing countries. Weight gain and perception of being obese has led to many psychological problems among adolescents. Research in this field has shown that the

### 1.1 Causes of Obesity

Even though the mechanism of development in obesity is not fully understood, it is sure that it occurs when the intake of energy through food is more than the energy spend through activities. There are multiple reasons for this imbalance, hence, and the rising prevalence of obesity cannot be addressed by a single cause. Some of the commonly observed factors responsible for the increase rate in obesity are discussed below:

1. **Lack of energy balance:** Energy balance means that energy in is not equal to energy out.
2. **Inactive lifestyle:** Sedentary lifestyle which means involving in tasks like TV watching, laziness, playing video games, less walking, etc.

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may contribute to accumulation of body fat.

3. **Diet:** Over the last decades, food has become not only a basic need, but it changes as per the lifestyle and is also a means of pleasure. The concept of food has changed from just as a source of nourishment. Obesity and overweight are always associated with calorie intake. It also depends on the frequency of the meals consumed. However, many claim that increase in obesity rate is due to high fat intake in the diet. Other foods commonly consumed such as dairy products, soft drinks etc. are also associated with overweight.
4. **Physical Activity:** It has been considered that a decrease in physical activity, especially among youngsters has definitely contributed to the increase in the rate of weight gain. Physical activities curtail when people are spending time on sedentary behaviours like watching television, playing video games or usage of computers.
5. **Genes or family history:** Ones chances of being overweight are greater if one or both of your parents are overweight or obese.
6. **Other health conditions:** It is said that hormonal imbalance also is a cause for emerging obesity.
7. **Medicines:** research has proved that certain medicines are also responsible for weight gain.
8. **Emotional factors:** some people when go through stress, emotions, tend to overeat, due to which they put on weight.
9. **Smoking:** Infact rather than smoking causing health hazards, when a person quits smoking, he/ she tends to gain weight and become obese.
10. **Lack of sleep:** People who sleep for less than the required number of hours, usually tend to eat more food during that time. This excess of food then gets converted into fat and leads to overweight and obesity

## 1.2 Health Consequences of Obesity and Overweight

The major health problems associated with obesity and overweight are:

- Type 2 diabetes
- Cardiovascular diseases and hypertension

- Some cancers
- Osteoarthritis
- Psychological problems
- Damage to the quality of life

## 1.3 Need & Significance of the Study

The above introduction, causes and consequences about obesity and overweight emphasise the need to continuously monitor trends in overweight and obesity. It also signifies the factors associated with these trends in adolescents as well as in children in order to develop appropriate health policy strategies for improving health and preventing obesity.

## 1.4 Scope of the Study

In an attempt to control the epidemic of obesity, a combined efforts which involves a series of activities should be taken forward. These includes spreading awareness about obesity, imparting education, primary health care, physical education in school, etc. Application of active research related activities should be carried out in order to create awareness and further to bring changes in public health policies.

## 1.5 Limitations of the study

1. The population of the survey was restricted to the adolescents with an age group ranging from eighteen to twenty one.
2. The awareness about nutritional aspects was limited to a few nutrients and a few food products.

## 1.6 Statement of the Problem

The so-called “obesity epidemic” has been on-going for more than 30 years, with significant adverse health complications. The problem of obesity is bothering all segments of population. The people who have on average gained weight, affects their personality and also hampers their finances.

## 1.7 Definitions

**Obesity:** Obesity is a medical condition, in which excess of body fat has accumulated to the extent that it might

have a negative effect on health of a person. A person is considered obese when his/ her body mass index (BMI), is over 30 kg/m<sup>2</sup>. BMI is a measurement obtained by dividing a person's weight by the square of the person's height. The range 25-30 kg/m<sup>2</sup> is defined as overweight. (Wikipedia)

Obesity can be defined as a condition in which there is of abnormal or excess accumulation of fat in the adipose tissue, to the extent that health may be impaired. (WHO)

**BMI (Body Mass Index):** Body mass index (BMI) can be expressed is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m<sup>2</sup>). It is calculated as  $[(\text{weight in kg}) / (\text{height in m})^2]$ , and is considered to be the most useful population-level measure of obesity, and it is a simple index to classify underweight, overweight and obesity in adults.

For adults, WHO ( World Health Organization ) defines overweight and obesity as follows: overweight is a BMI greater than or equal to 25; and obesity is a BMI greater than or equal to 30.

## 2. Literature Review

**Susanna Kautiainen**, The aim of the dissertation was to explain worldly changes in overweight, obesity and perceived weight in Finnish adolescents, to study socio-demographic differences in the prevalence of overweight over time, and to assess the associations of overweight and obesity with the usage of different forms of information and communication technology. The survey found that there was a steady rise in overweight and obesity. An important finding was that, the increase in BMI was considerably larger. These results emphasized the need to continuously monitor trends in overweight and obesity, as well as in the entire BMI distribution, and to study further the factors associated with these trends in adolescents as well as in children in order to develop appropriate health policy strategies for improving health and preventing obesity.

**Sanaa Shabbir, et al**, investigated differences in the occurrence of child-hood overweight and obesity among Asian/Pacific Islander (API) subgroups. Obesity also differed noticeably among ethnic subgroups. The problem of childhood obesity and over- weight in the above populace varies mostly among ethnic groups,

which strongly indicates a need for disaggregating data relating to them. Once this is recognized, it is easy for their society to intervene into the cause and treat the risk of higher obesity.

**Mahshid Dehghan, et al** has discussed about childhood obesity and agree that it has significant impact on their physical as well as psychological health. Certain factors like environment, lifestyle and cultural also has a root cause of this problem. Foods consumed such as soft drink, the portion size of the consumed food and to couple with that a decline in the physical activity are major factors to a high rise obese population all around the world. They also discussed the key strategies for controlling the current epidemic of obesity. These may include primary prevention of overweight or obesity, secondary prevention as weight loss. They mentioned that, Children should therefore be considered the priority population for intervention strategies.

**James D. Sargent, & David G. Blanchflower**, examined the association between obesity and physique associated with various age groups. The study demonstrated an inverse relationship between obesity and earnings. The extent of the relation is similar to that of other factors such as gender, type of job, etc. The obesity results of the men population were positive as compared to the women population.

**Peter Bundred, et al** determined the trends in weight, height and body mass index in children between 1989 and 1998. There was a highly significant increase in weight and body mass index in children under four years of age. The data collected was valuable in identifying anthropometric trends in populations.

**Epstein LH , et al** reviewed the effective use of exercise programs exercised on the obese children and the adolescents. In their research they have discussed, diet, age, gender, and type of exercise which should be followed. It also emphasized on the potential of these modules in controlling the obesity. The results proved that if a health regime is followed regularly, along with a diet plan, it helps in the treatment of obesity.

**Must, A; Strauss, R S** in their report explained the hazards and concerns associated with obesity in children and grownups. The research reviewed that, the group burden of pediatric obesity, could have a long term effects on self-esteem, body image and fiscal movement. It also discussed the intermediate penalties, such as the development of circulatory risk factors and

perseverance of obesity into adulthood which leads to mortality. These studies suggest that risk of heart disease and related mortality is raised among those who were overweight during childhood. The high dominant trend towards increasing childhood obesity suggest that without intentional methods to prevention and treatment, and ultimately good health will not be possible to attain.

**G C Patton, et al.** studied about the predictors of new eating disorders in an adolescent cohort. As per the conclusions of the study, following a diet could be the most important forecaster of new eating disorders. The difference between the eating disorders and high rate of dieting is followed mainly by females than males who are conscious about their physique. However in the younger group, weight control by means of exercise rather than diet restriction seems to carry lower risk of development of eating disorders.

**Stankiewicz M, et al** researched about obesity and diet awareness among Polish children and adolescents in small towns and villages. Research mentioned that awareness of healthy lifestyle behaviour is not sufficient to maintain optimal body mass. It also requires knowledge about proper eating habits is better among girls than among boys, especially in the older age groups. Though, in older groups, there is less physical activity due to spending more time in front of TV or the computer. High percentage of obese/overweight children and insufficient knowledge of nutrition may consequently result in increased risk of cardio-vascular diseases in adult population.

**Fu LG, et al** analyzed the awareness rate of obesity risk factors among children and adolescents, and to provide the basis for preventing their obesity. The overall awareness rate of obesity risk factors is not high among children and adolescents, especially among middle school students.

**Marta Stankiewicz1, et al** discussed about obesity and diet awareness among children and adolescents in small towns and villages. To maintain the optimum body mass, only awareness about health is not sufficient, but the person should implement them in the lifestyle. Children of all age and gender should be educated to follow the food habits and improve on the ss physical activities rather than spending more time in front of Television, laptop or elctronic gadgets. Improper way of following the practices without the consulting the nutritionist or a doctor may result into serious repercussions related to health.

**Pedro C. Hallal, et al** commented about a systematic review on adolescent physical activity and health. Physical activity in adolescence may contribute to the development of healthy adult lifestyles, helping reduce chronic disease incidence. The article reviewed the evidences on short- and long-term health effects of adolescent physical activity. Thus, there is an indirect effect on all health benefits resulting from adult physical activity .The study on physical fitness are of interest for understanding the relationships between fitness and health. It gave guidelines which should focus on fitness.

### 3. Objectives

1. To analyse the extent awareness about obesity among adolescents.
2. To determine the various causes of obesity.
3. To study the degree of awareness about the nutrients among adolescents.
4. To recommend measures to reduce obesity prevalence.

## 4. Research Methodology

### 4.1 Methods of Data Collection

**Primary data** - was collected through questionnaires addressed to more than hundred adolescents falling in the age group of eighteen to twenty-one, mostly the students at university levels. It consists of questions based on the awareness about obesity, causes of obesity and the general awareness among adolescent about basic nutrients.

**Secondary data** - was collected from published / unpublished literature on obesity among children, adolescents, causes and further implications to health disorders. Latest references available from the journals, newspapers, research publications and magazines, and other relevant sources like internet.

**5. Data Analysis & Interpretation:** The data collected was analyzed using basic analytical tools. The data analysis was conducted with the purpose of attaining the objectives of the research. Mentioned below is the analysis which is presented graphically for better interpretation.

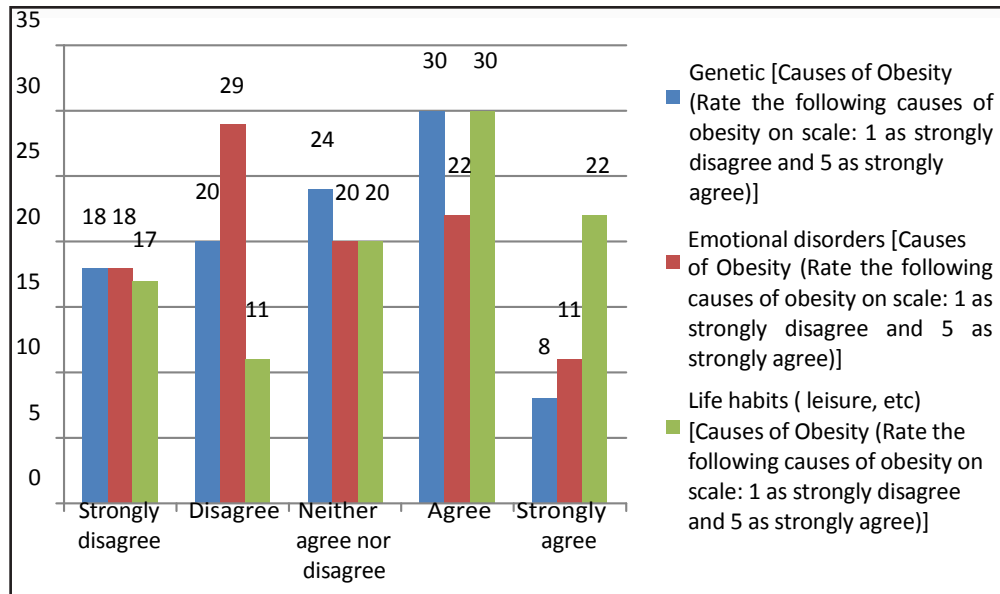


Figure 1: Causes of Obesity

**Observations:**

1. “Genetic disorder” is agreed as a major reason for the childhood and adolescent obesity.
2. Emotional disorder, however has been disagreed by most of the respondents.
3. Higher percentage of respondents agree that “Nature of work” is mostly considered as a major cause of obesity.

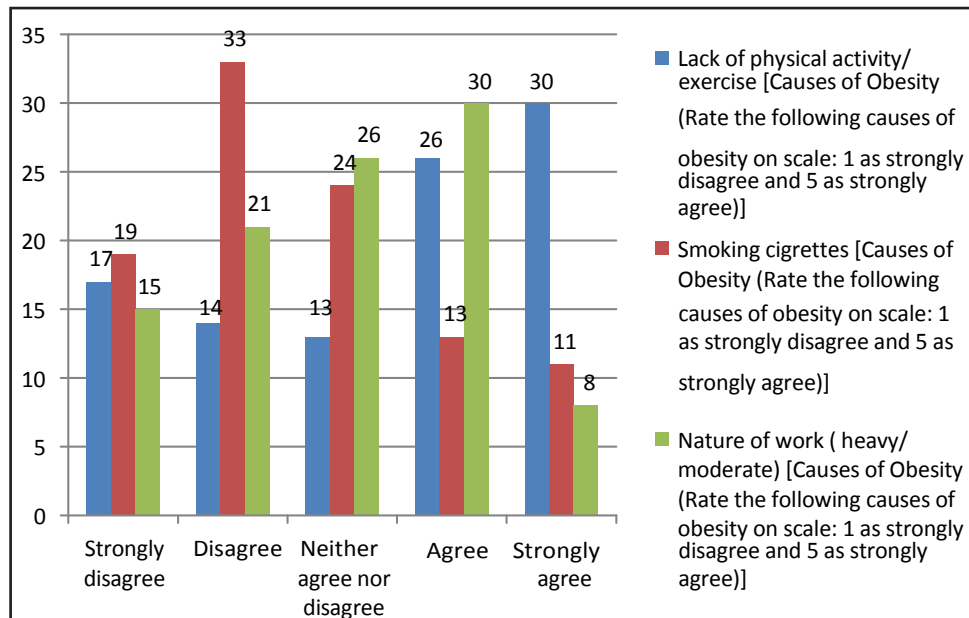
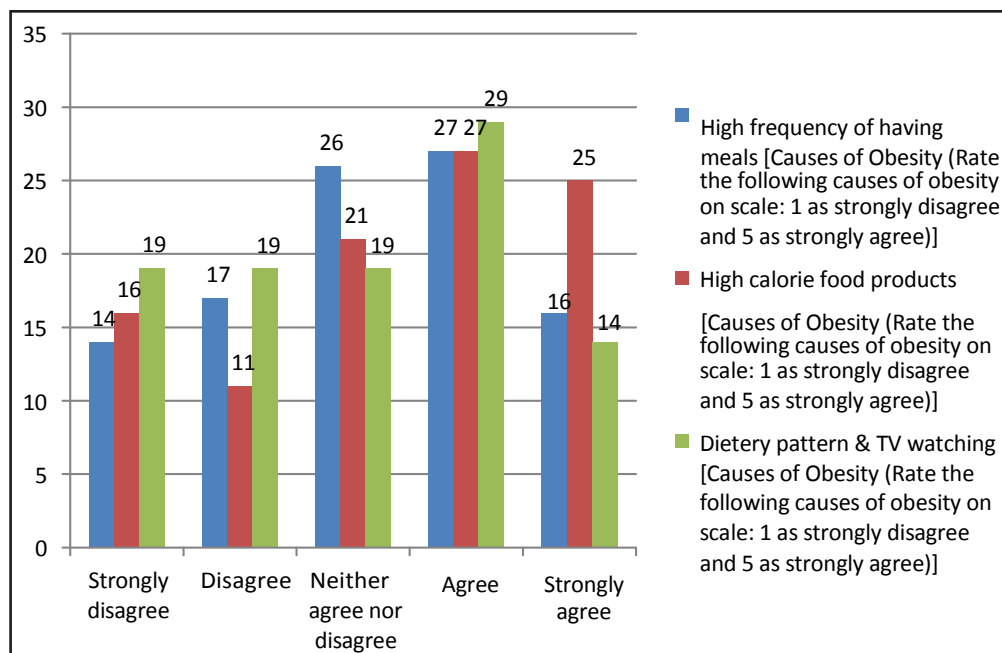


Figure 2: Causes of Obesity

**Observations:**

1. Highest number of respondents strongly agree that “lack of physical activity” is leads to overweight.
2. However “smoking cigarettes” is not considered as a valid reason beyond obesity.
3. One of the major reason for being overweight is “nature of work”, that a person is engaged into.



**Figure 3: Causes of Obesity**

#### Observations:

1. “High frequency of having meals” is another reason identified for increase in weight.
2. Along with the high frequency, “high calorie food products” are directly contributing towards obesity.
3. “Dietary pattern and TV watching”, has the highest vote as a cause of obesity.

## 6. Findings of the study

1. Obesity and Overweight are not alien terms to the adolescents. Though it is difficult to face, they are to a great extent aware about the epidemic.
2. Most respondents understand BMI (Body Mass Index) as a tool to measure the obesity and overweight in a person.
3. As far as, the awareness about the basic nutrients is considered, there is a mix response from the respondents. They could easily identify the food products rich in protein source, carbohydrate and vitamins and minerals source.
4. More than half the number of respondents are aware that “saturated fat” is a bad fat, which needs to be cut down. They are also aware that “hydrogenated oil” is a saturated fat.

5. However, confusion prevails as far as food products with more added sugar into them is considered.
6. Most of them also consider “pickles” as a food product with more added salt in it, as compared to “cheese”.

## 7. Recommendations & Suggestions

#### Prevention of obesity:

- The ideal strategy for obesity is to prevent children and adolescent from being obese. These could be limiting sweetened beverages, reducing on TV watching, limiting eating out, limiting portion sizes, including fruits and vegetables in the diet, fibre rich diet, etc.
- Community level interventions may include increase in physical activities at school, creation of parks, cycling, jogging, etc.
- At physician’s level consulting the doctor on parental obesity issues.

#### Treatment of Obesity:

- The treatment of overweight and obesity in children and adolescents requires a multi-folded intervention which would consider multiple factors like their age, gender, etc.

- The team should include a pediatric physician, nurse practitioner, dietician, physical instructor, behavioral therapist and a social worker in addition to a motivated team of parents, caretakers, teachers and policy makers.

#### **Dietary management:**

- It should aim at weight maintenance and weight loss taking care of the nutritional aspect.

#### **Enhancement of physical activity:**

- Regular physical activity is essential for prevention of overweight & obesity. Adolescents should be engaged in about one hour of moderate physical activity per day which could include brisk walk to burn calories.

#### **Restriction on sedentary jobs:**

- Excessive TV watching, playing games on computer along with food intake should be highly discouraged.

#### **Pharmacological treatment**

- Pharmacotherapy should be reserved as a second line of management
- Apparently, primary or secondary prevention could be the key plan for controlling the current epidemic of obesity and these strategies seem to be more effective in children than in adults.

## **8. Conclusion**

1. Obesity in adolescents and children has ascended to substantial levels globally with stern public health consequences.
2. Unless this epidemic is controlled at its root cause, its implications would spread seriously from one generation to the next.
3. There is a scope for dealing with these situation of obesity by proper intervention strategies followed with the help of experts and conscious efforts by the person facing it.

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