



## The prevalence of overweight & obesity in children & adolescents

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### Abstract

**Objective:** This study was conducted to examine the prevalence of overweight & obesity in children & adolescents of age group 5 to 10 & 10 to 15 years.

**Methodology:** A simple random sample of 100 school students of Pravara public school Loni, including 83 boys and 17 girls. The participants included were between age group of 5 to 10 & 10 to 15 years.

**Outcome Measures:** Body Mass Index, (BMI)

**Results:** According to the study in adolescents (10 to 15 years) underweight were 1%, healthy were 20%, 16%, overweight were 2%, 1% & obese were 4%, 8%.

In children (5 to 10 years) underweight were 2%, healthy were 19%, overweight were 2%, 4% & obese were 3%.

**Conclusion:** the study concluded that as there were more students who were overweight & obese so, it is necessary to follow up at health centers & train them about healthy lifestyle.

**Keywords:** overweight, obesity, children, adolescent, BMI

### Introduction

Obesity is characterized by excess fat or adiposity. Obesity is a multifactorial condition. Obesity among children & adolescents has one of the most serious public health problems in 21<sup>st</sup> century. The world wide prevalence of childhood obesity has increased remarkably over the past 3 decades [1]. Obesity can adversely affect every organ system in children. It can cause serious problems, hypertension, dyslipidemia, insulin, psychological complication. It is also a major contributor to increasing healthcare expenditure. There are multiple classifications of Obesity. Depending on the area of fat depositions. There are three forms of obesity.

**Peripheral:** Accumulation of excess fat in the hips, buttocks and thighs.

**Central:** Accumulation of excess fat in the abdominal area. Combination of both the peripheral and central obesity [7]. Abdominal area is considered as the most dangerous area for the accumulation of fats because it is closely located to the vital organs and their blood supply [8]. Depending on the association with other diseases. there are two types type-1 obesity & type- 2 obesity.

Factors which may influence the occurrence of obesity include, the following.

**Metabolic factor:** Both metabolic and hormonal factors are not the same for everyone, but these factors play a role in determining weight gain. The levels of ghrelin, a peptide hormone known to regulate appetite, and other peptides in the stomach, play a role in triggering hunger and producing a feeling of fullness further leading to obesity [11].

**Socioeconomic factors:** There is a strong relationship between economic status and obesity. The occurrence of

obesity is also highest among minority groups, especially among children & adolescents [11].

**Lifestyle choices:** Overeating, along with a sedentary lifestyle, contributes to obesity. These are lifestyle choices that can be affected by behavior change [12].

Eating a diet in which a high percentage of calories come from sugary, high-fat, refined foods promotes weight gain [13]. And, as of now children & adolescents prefer to eat on the go, high-calorie foods and beverages.

Lack of regular exercise contributes to obesity in children & adolescents and makes it difficult to maintain weight loss [14]. In children & adolescents inactivity, such as watching television or sitting at a computer, contributes to obesity.

Symptoms of obesity: The following are the most common symptoms that indicate an adolescent is obese. Symptoms may include:

Facial features often appear disproportionate Adiposity (fat cells) in the chest region in boys Large abdomen (white or purple marks are sometimes present) In males, external genitals may appear disproportionately small Puberty may occur early [15]

Increased adiposity in the upper arms and thighs Genu valgum (knock kneed) is common Adolescents who are obese often experience significant social pressure & stress. Psychologic disturbances are also very common. The symptoms of obesity may resemble other conditions or medical problems [15].

Obesity is most often defined by BMI. Overweight & obesity is known as the abnormal or excessive fat accumulation. It has an adverse effect on health & well being [1]. BMI is the high correlation with adiposity. BMI is measured by dividing the body weight in kg to height in M<sup>2</sup> (kg/m<sup>2</sup>). Obesity is classified according to stage or grades.

**Table 1**

<b>Grade 1</b>	<b>BMI</b>	<b>30.0-34.9</b>
Grade 2	BMI	35.0-39.9
Grade 3	BMI	BMI>40.0

Overweight & obesity increase the risk factor for the development of non-communicable disease during children & adolescence [2]. Overweight & obesity have negative impact on physical & psychological well being. Obesity is a high risk factor for the development of type 2 diabetes mellitus & cardiovascular abnormalities [3]. In children & adolescent with a BMI over the 85 but less than 95 % for age & gender are considered overweight & those with BMI greater than 95% are considered as obese.

**Table 2**

BMI (Asian Values)	Weight Status
Below 18.5	Under weight
18.5-24.5	Healthy
25.0-29.9	Over weight
30 & Above	Obese

Anthropometric indices like BMI are reliable method to measure overweight & obesity in children [4]. To aware children & their parents about overweight & obesity & their risk factors [5]. As overweight & obesity is rapidly increasing now-a-days in children's & adolescents so, I have decided to do the study on overweight & obesity in children & adolescents.

**Objectives**

This study was conducted to examine the prevalence of overweight & obesity in children & adolescents of age group 5 to 10 & 10 to 15 years.

**2. Methodology**

- Source of Data: The BMI is collected from pravara public school, Ioni road. Tal- Rahata Dist- Ahemadnagar.
- Method of collection of data: Survey
- Type of Data: Primary data collected by principal investigator
- Study Design: Experimental
- Sample size: 100
- Participants: 100
- Sampling Method: Convenient sampling
- Study Duration: One time study
- Equipments to be used: Weighing machine.
- Materials to be used: Non – Elastic measuring tape.

**Selection criteria**

**Inclusion criteria:** 5 to 15 years of age in children & adolescents.

**Normal individuals**

**Students willing to participate**

**Exclusion criteria:** Children with any kind of disability  
Genetic obesity.

**Procedure**

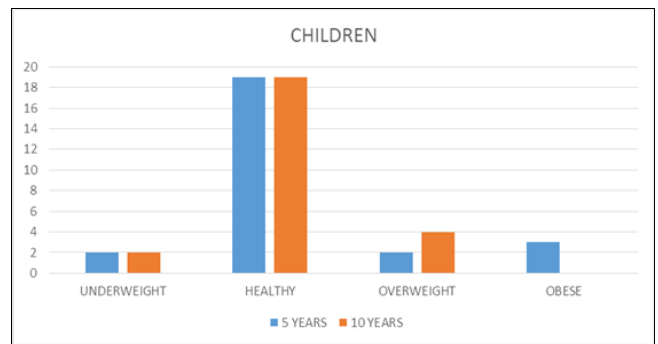
The ethical clearance form registration no. BPT/INT/2018/19. Participants will be randomly selected from the age group between 5 to 15 years & will be informed about the research. Consent will be taken from the

students who will be willing to participate in the research. They are taken into a classroom & will be informed about the research procedure & their questions will be answered. Physical measurements such as weight & height are taken using non – elastic tape measure. Before performing body weight measure the students are requested to take off his/her heavy clothes like jacket, jumper & shoes. The weight is taken on the weighing machine. The result observed on the indicator will immediately record in kg. To measure the height the student are asked to stand erect in front of the wall. The head, back, hip & heel of student touched to back of the wall & it will be ensured that feet of adolescents are naked & united. Then length from head to the ground will be recorded after measurement. Then BMI will be calculated by the formula  $BMI = \text{Weight}/(\text{Height})^2 = \text{kg}/\text{m}^2$

**Statistical Analysis**

**Table 3**

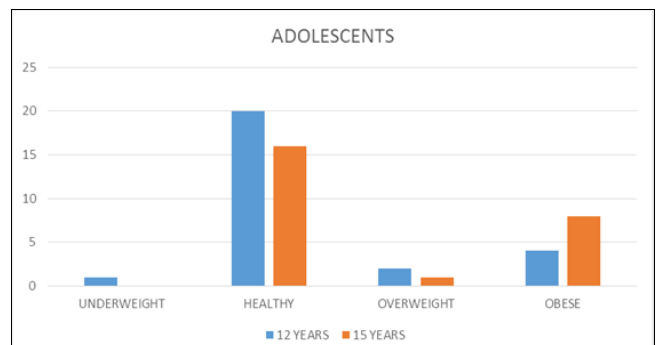
	5 Years	10 Years
underweight	2	2
healthy	19	19
overweight	2	4
obese	3	0



**Fig 1**

**Table 1**

	12 Years	15 Years
Underweight	1	0
Healthy	20	16
Overweight	2	1
Obese	4	8



**Fig 2**

**Result**

Of the children & adolescents from the age group 5 to 10 & 10 to 15 years were selected to participate in the research. In the age group of children's (5 to 10 years) 2% were underweight, 19% were healthy, 2% & 4% were overweight

& 3% were obese.

In the age group of adolescents (12 to 15 years) 1% were underweight, 20% & 16% were healthy, 2% & 1% were overweight, 4% & 8% were obese.

### Discussion

This study showed that the prevalence of overweight & obesity is more in children & adolescents. The prevalence of overweight & obesity among children & adolescents is a health problem around the world. The BMI values in children & adolescents are important risk factors for the presence of overweight & obesity. BMI has a high correlation with total body fat & percentage of body fat in children & adolescents. BMI is the most commonly used index of overweight & obesity.

In this study in adolescents (10 to 15 years) underweight were 1%, healthy were 20%, 16%, overweight were 2%, 1% & obese were 4%, 8%.

In children (5 to 10 years) underweight were 2%, healthy were 19%, overweight were 2%, 4% & obese were 3%. Risk factors may have negative health consequences such as diabetes mellitus, hypertension, insulin resistance & other cardiovascular diseases. It is due to physical inactivity & high calorie diet.

Sonya jagadesan, ranjani harish, priya miranda, ranjit unnikrishnan, ranjit mohan anjana and viswanathan mohan conducted a study on Prevalence of Overweight and Obesity Among School Children and Adolescents in Chennai in 2014 & they concluded that The prevalence of overweight and obesity is high in children & adolescents in Chennai. Which is similar to our result.

So to prevent the further risk factors and they can live a healthy life it is very important to check this in childhood. So it should be checked in each and every school and taken care of accordingly for their healthy lifestyle.

To prevent all the above mentioned risk factors it is important to treat the cause as soon as possible for this we can give physical activities on daily basis & also a healthy diet. This will help children and adolescents to live a healthy and productive life and also a disease free life.

### Conclusion

The study concluded that as there were more students who were overweight & obese so, it is necessary to follow up at health centers & train them about healthy lifestyle.

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