

# “A Study to Assess the Knowledge and Proportion of Obesity among High School Children in Selected Schools of Hyderabad, Telangana”

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**Abstract:** The aim of the study was to assess the knowledge and proportion of obesity among high school children, at Hyderabad. The analysis of the study made based on findings obtained from descriptive and inferential statistical analysis. The study findings revealed that there is no significant difference between the knowledge and proportion of obesity among high school children.

## INTRODUCTION

‘Prevention is better than cure’

-Louis Pasteur

Advancement in science and technology had definitely progressed the life of people in such a way that there is no time to eat/enjoy or feel it but only to run with dynamic activities. At this juncture particularly human beings learnt so many life styles; some are fruitful, some are detrimental towards the health of the individuals. Many diseases entered into the life of human beings, in order may be heart disease, diabetes, carcinomas, hypertension, hormonal problems and some of the symptoms that cause disease. One such symptom is obesity.

Obesity is a serious health problem and its prevalence has increased dramatically over the past 20 years. Today it is estimated that over 250 million people in low and middle income countries suffer from obesity, but globally more than one billion adults are overweight and of these 300 million are obese. Even in India it is a growing concern, as the Indian economy is growing, even the Indian middle class families are at risk.

Adolescence is the period of crucial phase of growth. During this phase physical changes including growth, the onset of menarche for the girls, and increase in fat and muscle mass takes place. This contributes to obesity. Childhood and adolescent obesity is associated with increased morbidity and mortality in their adulthood.

Childhood obesity is a single marker of the child at risk for development of various non-communicable diseases, later in life. These children are at a higher risk of "childhood onset of adult diseases" especially cardiovascular diseases. People who are Obese are severely overweight are at risk in many ways. Obesity is increasingly being recognized as an important risk factor in various chronic illnesses, ranging from premature deaths to chronic conditions, which in turn affects, the quality of life. Obesity as such is predisposing factor for systemic diseases like hypertension, cardiac diseases, diabetes mellitus, thyroid problems and many psychological and social which cannot be explained fully each step of their getting obese. So obesity can be prevented/controlled even if it is of genetically in nature in order to lead a happy life and prevent/restrict getting complications.

Obesity is a chronic disease, characterized by excess body fat and is secondary to smoking which is preventable cause of death. Classification and diagnosis of obesity is done by knowing Body Mass Index (BMI)

which is calculated as 
$$BMI = \frac{\text{mass (kg)}}{(\text{height(m)})^2}$$

A BMI of 18.5 to 24.9 may indicate optimal weight. Obesity in children is calculated through BMI-for-age percentile charts for boys and girls. The Centers for Disease Control and Prevention (CDC) suggests BMI-for-age weight status categories and their corresponding percentiles. A BMI of 85th to 95th percentile is considered as overweight and equal to or more than 95th percentile as obesity. Obesity is due to an imbalance energy intake and energy expenditure. People who eat more and work less are bound to become gradually obese.

Obesity is an important risk factor for a number of dreadful diseases and obese individuals are prone to suffer ultimately from these diseases like ischemic heart diseases leading to heart attacks, Type-II diabetes,

hypertension, stroke, osteo arthritis and increased incidence of different cancers. Gastro esophageal reflux diseases, sleep apnea, gout, infertility are some of the important diseases associated with obesity.

Regarding the international standards, obesity has reached epidemic proportions in USA, UK particularly among children and adolescents, more than 50% of the US population are obese. Urban areas are important factors responsible for obesity. Increasing urbanization of the rural population and westernization of urban areas are important factors responsible for obesity. Increasing obesity in children and adolescents is due to fat and junk foods, decreased physical activities, hereditary, lifestyle modification of dynamic society.

Ill effects of obesity in age wise are: *In children and teenagers*- physical problems like difficulty in walking, tiredness, easy fatigability, juvenile diabetes mellitus, psycho-shyness, depression, ego problems, and inferiority complex. *In middle age women*-have increased risk of breast, cervix and colon cancers, type II diabetes mellitus, hypertension, strokes. *In men*- type II diabetes mellitus, ischemic heart disease, heart attacks, strokes, hypertension, tiredness, easy fatigability, psychological problems. *In old age people*- type II diabetes mellitus, strokes, hypertension, osteoarthritis, disturbances in daily activities.

Michelle Obama (2015): In February of this year, First Lady Michelle Obama presented her ambitious Let's Move campaign to battle the terrifying childhood obesity epidemic. Lady Obama was inspired not only from her family and children's lifestyle, but also by some startling obesity statistics that have been gathered by medical researchers over the past thirty years. If both parents are overweight, a child's likelihood of being overweight is increased by 60-80%. The chance of an obese child growing into an obese adult is about 70%. Children perceive the number one immediate issue of being overweight is social discrimination, as reported by overweight children. This has the ability to prevent them from exercising with other children, which leads to antisocial and depressive tendencies, as well as lifetime psychological effects. The cost of obesity is high. Not only are there lifelong health issues to consider, but those who are obese pay an average 30% more in health costs, and 77% more in medication costs. It requires more foods that are high in "empty" calories to provide energy, and larger meals in general are much more expensive.

Neetu Chandra Sharma (2014): The study - titled 'Global, regional, and national prevalence of overweight and obesity in children and adults during 1980-2013: A systematic analysis for the Global Burden of Disease Study 2013' - used data collected by international bodies and organisations in various countries like India over three decades. The US topped the list with 13 per cent of the obese people worldwide in 2013, while China and India together accounted for 15 per cent of the world's obese population, with 46 million and 30 million obese people, respectively. According to the study, number of overweight and obese people globally increased from 857 million in 1980 to 2.1 billion in 2013. This is one-third of the world's population.

Fredrick D. Smith, (2010). Conducted a study to investigate the current global childhood obesity epidemic in Asian countries. A cross sectional survey was done among 7078 school children of 12 to 17 years of age. Data was collected through a validated questionnaire. The study findings reveals that the causes contributing to childhood obesity include sedentary behavior, increased consumption of fast foods, and overall excess calorie consumption along with inadequate physical activity. More consistent implementation of school wellness policy initiatives may decrease the incidence of obesity among children.

Richard S. Strauss (2009). Conducted a study on Childhood Obesity and Self-Esteem. A total of 1520 children, 9 to 10 years of age were studied in New Brunswick, New Jersey. Self-esteem was measured using Self-Perception Profile for Children. Additional data include a self-administered questionnaire concerning emotional wellbeing, smoking, and alcohol consumption. Data were stratified by race and gender. The study concludes that obese children with decreasing levels of self-esteem demonstrate significantly higher rates of sadness, loneliness, and nervousness and are more likely to engage in high-risk behaviors such as smoking or consuming alcohol.

It is a well-known fact that the prosperity of a nation depends upon the quality of human resources. Today in India's population structure, there is a significant percentage of young people in the age group of 10-19 represent 2-8% (nearly 230 millions). This is almost 2/3rd of the world adolescent population. Adolescence is generally understood as the period of transition from childhood to adulthood.

India is undergoing a rapid epidemiological transition. The burden of chronic diseases is overtaking the burden of infectious diseases. The prevalence of obesity is increasing globally. Childhood and adolescent obesity is related to adult levels of lipids, lipoproteins, blood pressure, insulin, and coronary heart diseases. Overweight children are twice as likely to be obese as compared to normal children.

Obesity is the most popular cause of morbidity in children and teenagers, because of life style, socio economic conditions the obesity is most prevalent and one more important cause for obesity is taking junk foods, hereditary and decrease physical activity.

A study conducted among adolescent girls between the age group of 10 and 15 years, at Chennai, revealed that the prevalence of the obesity ranged from 8.0 -10.81% with peaks at 10years, 12.5 years and 13.0 years. Another study was conducted to find out the childhood obesity and hypertension among 3,861 School Children between the age group of 5 and 15 years at Delhi. The findings of this study revealed that 7.56% of the children were obese, and mean blood pressure levels both systolic and diastolic were found to be significantly higher in the obese children. This causes substantial risk for morbidity such as hypertension and Dyslipidemia even before they reach adulthood.

In 1999, 13% of children and adolescents were found to be overweight in India. At least one in 10 urban middle class children in India is overweight. Globally there are 300 million adolescents who are obese. India is in the midst of a rapidly escalating 'epidemic' of type-II Diabetes and coronary heart disease (CHD). It is predicted that CHD will soon become the leading cause of death in our country. Research studies are showing that 50 to 80% of obese children and adolescents will become obese adults, and all complications of adult obesity are made worse. It begins in childhood and continues through adolescent period to adulthood. High risk of gestational diabetes in pregnant women causes higher birth weights in babies that could lead to the development of obesity in childhood and in adolescence.

Another major factor for obesity in India is the intense competition, which exists in schools and colleges. Parents of such children and adolescents have thus forced them for tuition classes with the ultimate sacrifice of their play time. Games or physical training sessions are also restricted or non-existent in many schools. Some schools do not have any playground at all. Thus children are made inactive, which can result in obesity. Unhealthy eating and wrong choices of food causes obesity in children. Overweight children and adolescents may be at disadvantage physically, socially as well as economically.

Obesity predisposes a person to heart enlargements and type-II diabetes mellitus, menstrual disturbances in teenager's girls, and osteoarthritis in aged people. The effect of excess weight on heart health can be seen even in adolescents by abdominal fat according to new study in the June 2006, issue of the journal of the American college of Cardiology.

Obesity is also associated with increased morbidity and mortality in their adulthood. Studies revealed that the children and teenagers will often experience social problems, prejudice and discrimination; not only from the general public, but also from health professionals and this may make them reluctant to seek medical advice. Obesity can be prevented by avoiding junk foods (fast foods). Encourage home foods with increased physical activity, healthy life styles, watching TV while eating food, as obesity may lead to problems/morbidity and changes in middle age and it is a social problems of younger generation. Since children and teenagers are the future citizens of any country, safe guarding the health of youngsters must be prime responsibility, though obesity is on rise, treatment modalities also have increased. Obesity clinics in every popular circles, shopping centers are just few examples. Not only obesity clinics but also nature cure hospitals, Ayurveda hospitals have come up to treat obese people.

## II EXPERIMENTAL WORK

A non-experimental study was conducted to assess the knowledge and proportion of obesity among high school children at Hyderabad.

**Research Design:** descriptive research design and the approach is non-experimental in nature.

**Setting:** Mothers Integral High school, Vidyanagar; Aurobindo International School, Vidyanagar, Hyderabad, Telangana.

**Population:** High school children (9<sup>th</sup> and 10<sup>th</sup>) of selected schools of Hyderabad.

**Sample size:** 200 high school children.

**Sample technique:** Non probability convenient sampling technique.

**Criteria for sample selection:**

- 9<sup>th</sup> and 10<sup>th</sup> standard only.
- Studying in selected schools only.
- Available at the time of data collection only.
- Willing to participate in the study only.

The study is carried out by using structured questionnaire on obesity organized under three parts A, B & C.

**Part-A:** Deals with the demographic variables such age, sex, religion, type of family, occupation of the father, occupation of the mother, monthly income of the family and dietary habits.

**Part-B:** Deals with knowledge regarding obesity. It further has 4 sections.

**Section-I:** Items related to meaning & causes of obesity.

**Section-II:** Items related to signs & symptoms of obesity.

**Section-III:** Items related to diagnosis of obesity.

**Section-IV:** Items related to management & control of obesity.

**Part-C:** Deals with the data related to assess proportion of obesity including sex, date of birth, date of measurement, height (cms), weight (kgs), BMI, BMI percentiles. In order to measure the proportion of obesity, respondents were asked for their date of birth and height & weight were measured using height scale and weighing machine. Later on BMI percentiles were calculated from EXCEL calculator developed by CDC (Centre for Disease Control).

**Score Interpretation:**

Structured questionnaire of part B has 30 questions related to knowledge. Each question carries one mark.

**The knowledge scores are categorized into three groups.**

- 0 - 50% - Below average
- 51 - 75% - Average
- > 75% - Above average

**The BMI percentiles were interpreted as**

<i>Weight status category</i>	<i>Percentile Range</i>
Under weight	< 5 <sup>th</sup> percentile
Healthy weight	5 <sup>th</sup> to < 85 <sup>th</sup> percentile
Over weight	85 <sup>th</sup> to < 95 <sup>th</sup> percentile
Obese	Equal to or > 95 <sup>th</sup> percentile

**III RESULTS AND DISCUSSIONS**

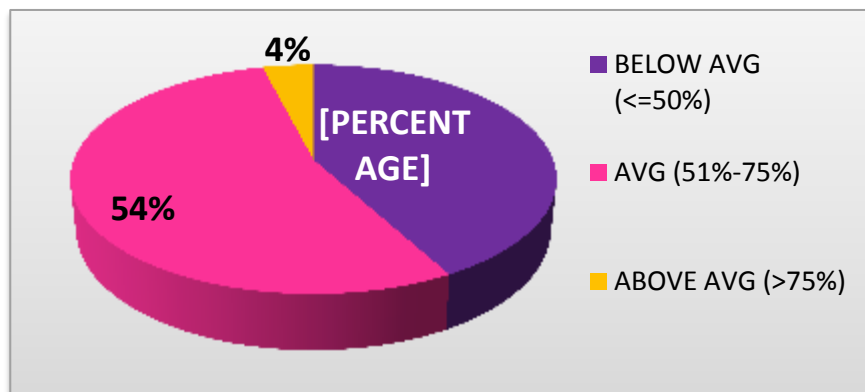
**Table - I**

**Frequency and percentage distribution of high school children according to Overall level of knowledge n =200**

Level of knowledge	Frequency	Percentage
Below average (<=50 %)	84	42
Average (51-75%)	108	54
Above average (>75%)	8	04
<b>Total</b>	<b>200</b>	<b>100</b>

**Mean = 52.48, Median =53.33, Mode = 63.33, SD = 13.76**

Table – I shows that out of 200 high school children, 42% have scored below average level of knowledge, 54% have scored average level of knowledge and 4% have scored above average level of knowledge regarding obesity.



**Fig.I Percentage distribution of high school children according to overall level of knowledge.**

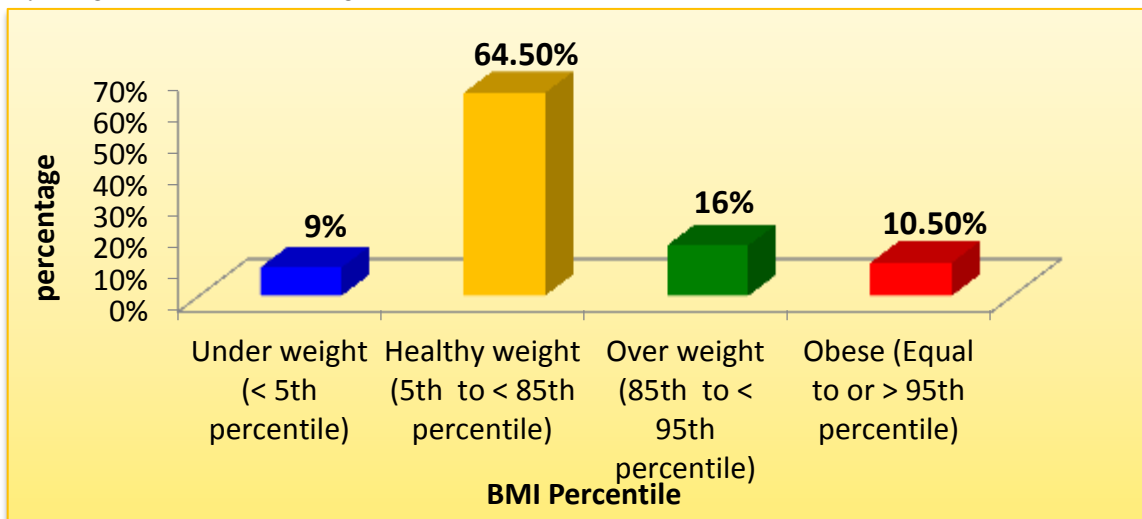
**Table II**

**Frequency and percentage distribution of high school children according to proportion of obesity  
n =200**

Proportion of obesity	Frequency	Percentage
Under weight (< 5 <sup>th</sup> percentile)	18	9
Healthy weight (5 <sup>th</sup> to < 85 <sup>th</sup> percentile)	129	64.5
Over weight (85 <sup>th</sup> to < 95 <sup>th</sup> percentile)	32	16
Obese (Equal to or > 95 <sup>th</sup> percentile)	21	10.5
<b>Total</b>	<b>200</b>	<b>100</b>

**Mean =52.56, Median =54.75, Mode = 0, SD = 32.71**

Table - II shows that out of 200 high school children, 9% of high school children are under weight, 64.5% are healthy weight, 16% are overweight and 10.5% are obese.



**Fig II. Percentage distribution of high school children according to proportion of obesity**

**Table - III**

**Relationship between the knowledge and proportion of obesity among high school children  
n = 200**

Variable	Mean	SD	Correlation (x, y)
Knowledge	52.48	13.76	r= - 0.027
Proportion of obesity	52.56	32.72	

In Table - III the value of correlation coefficient 'r' = -0.027 reveals that the two constructs knowledge and proportion of obesity were negatively correlated and the value of r is statistically not significant at 0.01 levels (p<0.05). The study confirmed the hypothesis that, no significant relationship exists between knowledge and proportion of obesity among high school children. Thus, the null hypothesis was accepted.

## CONCLUSION

Most of the high school children had average factual knowledge of obesity and the total mean knowledge score was 52.48% and the total proportion of obesity was 10.5%. It was seen that 42% of high school children had below average knowledge, 54% had average knowledge and only 4% had above average knowledge. About 16% of high school children are overweight and 10.5% are obese. This shows that there is still lack of knowledge among high school children and there exists overweight and obesity in high school children which may lead to obesity in adult. Therefore, it is essential to update their knowledge by providing information which was attended to by providing a pamphlet on childhood obesity at the end of data collection.

Sex, religion and type of family had influence on knowledge scores. Females had more knowledge than males, religion other than Hindu, Muslim, Christian and children from nuclear family had more knowledge. None of the variables had any influence on proportion of obesity except the occupation of father where children's whose fathers are un-employee shows high BMI percentiles.

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