

A Clinical Study on Obesity in children in Rural Medical College

Kashavoyina Muralidhar¹, Mohammad Sarfarz², A Bhaskar³

¹Associate Professor, Department of Pediatrics, Kamineni Medical College, Narketpally, Telangana, India, ²Assistant Professor, Department of Pediatrics, Kamineni Medical College, Narketpally, Telangana, India, ³Professor, Department of Pediatrics, President IAP, Telangana, India.

Abstract

Background: Obesity is one of the most common disorders in medical practice and is the most frustrating and difficult to treat condition. Obesity is defined as the excess of adipose tissue. Body fat can be detected by physical examination, but body mass index (BMI) is used for more quantitative evaluation. Overweight and obese are the 5th leading cause of global deaths. In 2008 more than 1.4 billion adults (20 years and older) were overweight. In 2012 more than 40 million children under 5 years of age were overweight. Once considered high-income country problem, the overweight and obesity are now rising in low and middle-income countries, particularly in urban settings. Close to 30 million children are living in developing and 10 million in developed countries. Childhood obesity is associated with a higher chance of premature death and disability in adulthood. The aim is to study the pattern of obesity in children in rural medical college. **Subjects and Methods:** We have conducted this study for 8 months from March 2020 to October 2020 in the department of pediatrics in Kamineni medical college. Informed consent has been taken from parents and the college ethical committee approval has been obtained. Careful history taking, height and weight were measured for each child by trained paramedical staff. We have included 965 children in this study. **Results:** We have included 965 total children in this study out of these 965, boys were 445 and girls were 520. The studied age group is between 8 and 16 years. All are from different residential areas and parents were of different qualifications and occupations. In our study we found the total overweight and obese children were 230. **Conclusion:** Obesity is a common medical problem in India and worldwide also. It is observed commonly in girls. In rural areas also the prevalence in girls is high. In rural areas, lack of physical activity and faulty eating habits may be common causes for increasing prevalence.

Keywords: Body mass index, obesity, cholesterol, morbidity, complications.

Corresponding Author: Mohammad Sarfarz, Assistant Professor, Department of Pediatrics, Kamineni Medical College, Narketpally, Telangana, India.

E-mail: drsrinivas.1111@gmail.com

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Introduction

Obesity may be defined as an abnormal growth of the adipose tissue due to an enlargement of cell size (hypertrophic obesity) or increase in fat cell number (hyperplastic obesity) or a combination of both.^[1] Obesity is often expressed in terms of body mass index (BMI). Overweight is usually due to maybe obesity but may also be due to increased muscle mass, fluid retention, and some endocrinological diseases (Eg. Cushing syndrome).^[2] Body mass index is measured in weight in Kgs divided by height in M square (BMI = wt(kg)/Height² CM. The normal range is 18.5-24.99. The National Institutes of Health (NIH) defines a normal BMI as 18.5-24.9; Overweight is defined as BMI: 25-29.9; Class I Obesity is 30-34.9; Class II obesity is 35 – 39.9; Class III (extreme) Obesity is BMI greater than 40.^[3] Upper body obesity (excess fat around the waist and flank) is a greater health hazard than lower body obesity (Fat in the thighs and buttocks) in obese

patients with increased abnormal circumference (greater than 102 Cms in men and 88 Cms in women) or with high waist-hip ratio (greater than 1.0 in men and 0.85 in women) have a greater risk of diabetes mellitus, stroke, coronary artery disease and early deaths than equally obese patients with lower rates. And visceral fat within the abdominal cavity is more hazardous to health than subcutaneous fat around the abdomen. The incidence of childhood obesity has increased rapidly in the last decade. Childhood obesity has serious short and long-term medical consequences. Children with a BMI of more than 85th percentage for age are considered overweight while those that more than 95 % percentile for age is obese.^[4] Weight for the height of more than 120% is diagnosed as obesity. Environmental and heredity factors play a major role in childhood obesity the other causes include Cushing syndrome, hypothyroidism, steroids, genetic syndromes like Prader villi syndrome and leptin deficiency.

Obesity can occur at any age. Generally increases with age. Infants with excessive weight gain have an increased incidence of obesity in later life. About $\frac{1}{2}$ of obese adults have been so since childhood. Women generally have a higher rate of obesity than men. Regular physical activity is protective against increased weight gain. People with a sedentary lifestyle are more prone to develop obesity. There some inverse eating habits also play a major role in obesity. It has been articulated that a child whose energy requirement is 2000 Kcal /day and who consumes 100 Kcal/day extra will gain about 5 kgs a yr. [5]

Subjects and Methods

We have conducted this study for 8 months from March 2020 to October 2020 in the department of kaminani medical college, Narkatpally. Informed consent has been taken from the college ethical committee. After careful history taking and clinical examination height and weight recording were taken by trained paramedical teams. Children with endocrinological abnormalities like hypothyroidism and who are on drugs like steroids were excluded in this study. The children with clear cut overweight and obesity are included in this study. We have not advised any investigations since this study has been about the history and physical examination only. Total members of children included in this study in 965, boys were 445 girls 520, the common age group between 12 -16yrs Enter data is analyzed systematically and computerized by using cell method.

Result

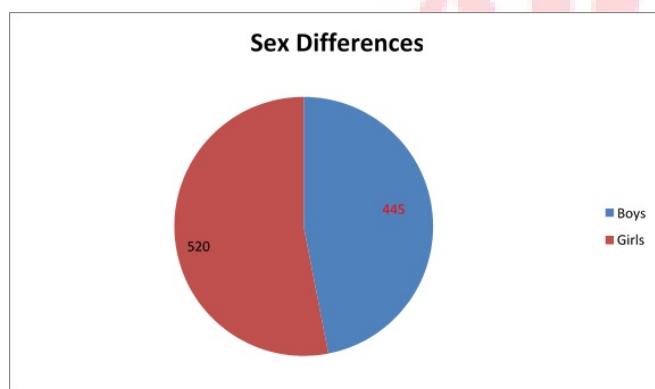


Figure 1: Sex Differences

In this study, we have included a total of 965 children. Out of this 965 boys are 445 and girls are 520 the common age group is between 14 to 16 years over wt and obesity is increasing with age. These results correlate with the studies conducted by Shetty PS Et al. [6] Overweight and obesity gradually increase

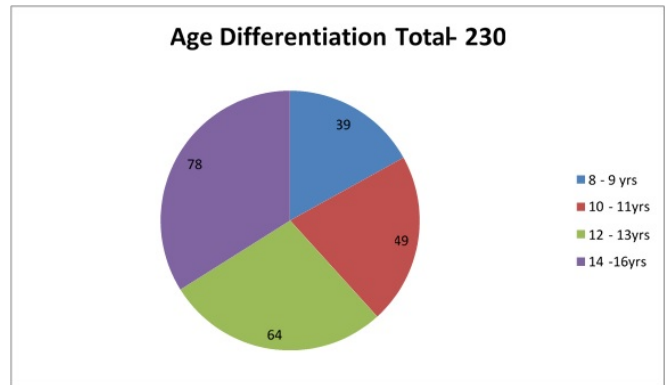


Figure 2: Age Differentiation.

with age. In our study in among boys in 8 – 9yrs group the number of boys was were 18 (3.95%) and in 14 -16yrs group, the number is 35(7.68%) In Girls section the number of childrens 21(4.03%) and 46(8.25%) respectively. These & figures nearly correlating with the study conducted by Chu NF Et al. [7] In Boys, nearly 10% are having Class I obesity and 5% are in Class III obesity

Discussion

Childhood obesity is a very common problem worldwide. The number of cases is increasing in developed and developing countries. It is emerging convincingly that the geniuses of Type 2. Diabetes and coronary artery disease begin in childhood obesity serving as an important factor. There has been a phenomenal rise in the proportion of children having obesity in the last 4 decades some studies show from India with in the last few years indicating that similar trend. [8]

In our study average prevalence is about 8.5%of boys, 8.79% of girls are having obesity the studies conducted in the Mahe region by the Kerala govt show the prevalence is 9.25%. In Ex a similar study from Kerala also that there are increasing trends in the prevalence of obesity from 4.9% in 2003 to 6.57% in 2005(9). In our study obesity is more common in girls than boys out of 965 children, obesity is observed in 125 girls and 105 boys. The studies conducted in Pondicherry shows similar results but whereas the observation in male study is reversed. [9,10]

The prevalence of overweight and obesity was a little higher in children. Those who are residing in urban areas than rural areas in urban areas, In the urban area, were 3-4 times at greater risk of being overweight and obsessed compared to children in rural areas. [11] It was observed that the prevalence of overweight and obesity was 2.84% and 2.15% among children studying in govt schools. Whereas it was found to be higher among children studying in private schools. 3.25% and

Table 1: Age differentiation in Boys

S. no	Age in Yrs	No. of Child 445	Percentage
1	8 - 9yrs	18	3.95%
2	10 – 11yrs	23	5.25%
3	12 – 13yrs	29	6.30%
4	14 – 16yrs	35	7.68%

Table 2: Age differentiation in Girls

S. no	Age in Yrs	No. of Child 520	Percentage
1	8 - 9yrs	21	4.05%
2	10 – 11yrs	26	5.25%
3	12 – 13yrs	35	6.79%
4	14 – 16yrs	43	8.26%

Table 3: Classifications of obesity according to BMI

S. No	BMI (Wt/Ht ²)	No. of Children in Boys 445	Percentage	No. of Children in Girls 520	Percentage
1	30 – 34.9	48	10.43%	52	10%
2	35 – 39.9	37	8.04%	41	7.8%
3	>40	25	5.43%	32	6.81%

Table 4: Children from different Living areas.

S. No	BMI (Wt/Ht ²)	No. of Children in Boys 445	Percentage	No. of Children in Girls 520	Percentage
1	Urban	51	11.55%	63	12.75%
2	Semi Urban	39	8.95%	48	9.23%
3	Rural	15	3.78%	14	2.69%

2.92% respectively.^[12]

The areas of residence socio-economic conditions and age (gender differences were felt to be important contributors towards overweight and obesity.

According to statistics in the united states, more than 64% of adults are having overweight or obese and the prevalence is increasing rapidly in developed countries like the US, UK, and Australia. Multiple health problems are associated with obesity like hypertension diabetes mellitus, dyslipidemia, obstructive sleep apnea. Degenerative joint disease, COPD, CAD, Osteosthritis cholethisis, and certain malicious like breast cancer uterine malignancy. Management of obesity includes diet therapy, physical activity therapy behavioral therapy pharmacotherapy and bariatric surgery lifestyle management results in 3-5 kgs weight loss diet therapy includes meals of small position size, eating more fruits and vegetables, and whole-grain cereals 2 classes of drugs are used for obesity 1) Appalite, supersets and gastrointestinal blockers. Bariatric surgery is an increasingly prevalent treatment option

for patients with severe obesity. Widly used operations are Roux-an-y gastric bypass (RYGB) and gastric bonding. A third operation is sleeve gastronomy.

Conclusion

Childhood obesity is a global problem. In India the prevalence is slowly increasing. Obesity is more in girls than boys. Urban residing children are more affected than rural residing children. Dietary habits and physical activity play a major role and other factors included are social-economic, environmental, and genetic factors.

References

1. ; 2015.
2. Charvey. New Eng Journal of Med. 1976;p. 295–301.
3. Ogden CL, Carroll MD, Flegal KM. Prevalence of obesity in the United States. JAMA. 2014;312(2):189–90. Available

- from: <https://doi.org/10.1001/jama.2014.6228>.
4. Gidding SS, Bao W, Srinivasan SR, Berenson GS. Effects of secular trends in obesity on coronary risk factors in children: the Bogalusa Heart Study. *J Pediatric*. 1995;125(6):868–874. Available from: [https://doi.org/10.1016/s0022-3476\(95\)70020-x](https://doi.org/10.1016/s0022-3476(95)70020-x).
 5. Wt A, Mayar J; 1968.
 6. Shetty PS. Nutrition transition in India. *Public Health Nutr* . 2002;5(1a):175–182. Available from: <https://dx.doi.org/10.1079/phn2001291>.
 7. Pan C, H W. Prevalence of obesity and its comorbidities among school children in Taiwan. *Asia Pae. J Clin Nutrition*. 2007;p. 16–601.
 8. Laxmaiah A, Nagalla B, Vijayaraghavan K, Nair M. Factors affecting prevalence of overweight among 12- to 17-year-old urban adolescents in Hyderabad, India. *Obesity (Silver Spring)* . 2007;15(6):1384–1390. Available from: <https://doi.org/10.1038/oby.2007.165>.
 9. Raj M, Paull MSK, Deepa AS, Kumar RK. Obesity in India Children; Time Trends and relationship with hypertension. *Nath Med J India*. 2007;20(6):288–293.
 10. Subramanyam V, Jayashree R, Rafi M. Prevalence of overweight and obesity in affluent adolescent girls in Chennai in 1981 and 1998. *Indian Pediatr*. 2003;40(4):332–338.
 11. Khendilkar VV, Khadihkar AV. Prevalence of obesity in affluent school boys in Pune. *Indian pediatric*. 2004;41(8):857–865.
 12. Bhave S, Bavdekar A, Otiv M. IAP National Task Force for Childhood Prevention of Adult Diseases: Childhood Obesity. *Indian Pediatr*. 2004;41(6):559–575.

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