



Prevalence of obesity among adolescents of Vellore city Tamil Nadu, India

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Introduction

A healthy childhood is a foundation for a healthy adult life. Habits formed in childhood have a long-term impact on health and wellbeing. To keep a child in good health, parents and significant others should help their children in cultivating healthy habits towards optimal health(1))(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

The common health related problems encountered during the formative years are gastrointestinal infections, respiratory ailments, obesity, etc. Among these, the obesity is a global concern due to its potential risk for the highest rise in non- communicable diseases like diabetes mellitus, Ischemic heart disease and other cardiac conditions in later part of life.(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

As per the estimates, there are more than 300 million obese people throughout the worldwide. Childhood obesity has reached epidemic proportions in 21st century, with rising rates in both the developed and developing world, <http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>for which prevention of childhood obesity is now a global priority. This reflects the fact that during the past two decades rates of obesity have escalated sharply in both developed and developing countries. Changing diet and decreasing physical activity are believed to be the two most important factors in causing childhood obesity(2)(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

In addition to these other factors like urbanization and modernization, sedentary life, consumption of oily, junk food and other lifestyle changes have contributed to overweight and obesity. International Obesity Task Force (IOTF) calculated the global prevalence of overweight (including obesity) in children aged 5-17 years to be approximately ten%3. Various studies in India have found that the incidence of childhood overweight and obesity has increased dramatically(3). (<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

An interventional study was conducted among 6000 Indian school children at Hyderabad, Andhra Pradesh. This study finding revealed the degree of obesity (>30% body fat) in all subjects was 30.19%, wherein affluent schools obesity percentage was 50.47 and in non- rich schools it was 19.92%(4). (<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

Overall the prevalence of childhood obesity has nearly tripled since the 1970s and is recognized as a serious public health concern. In addition to long-term physical health risks due to overweight, obese children and adolescents face significant mental health and psychosocial morbidities. Thus, research into overweight in childhood, with a focus on prevention of obesity is the top most priority (5)

(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

Exercise is a physical activity performed to maintain fitness and health. Health benefits can be derived solely from becoming more physically active, but the greatest benefits come from engaging in planned and structured exercise(6)

A weight reduction program for school going children should contain three aspects, intake of 1200 calories low in fat, active exercise program and counseling program. The counseling program is done to discuss various aspects such as concentrating on self-image and motivation to reduce weight etc.(7)

When children engage in longer periods of sustained physical activity, there is a smaller likelihood of developing overweight or obesity(8)(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

With unprecedented global increases in the prevalence of childhood overweight and obesity, there is an urgent need for effective physical activity programs to reduce the incidence of overweight and obesity(9) (<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

With unprecedented global increases in the prevalence of childhood overweight and obesity, there is an urgent need for effective physical activity programs to reduce the incidence of overweight and obesity.(10)(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

In the Ancient period, Egyptians considered obesity as a disease.

Obesity is currently treated as a growing global problem:

The World Health Organization has been active in its mission to curb the global issue of childhood obesity¹⁰. The increasing prevalence of childhood obesity and its concomitant health risks justify widespread efforts toward prevention.(11)(<http://www.iosrjournals.org/iosr-jnhspapers/vol5-issue2/Version-2/A05220117.pdf>)

Worldwide, disease profiles are transforming at a rapid pace catching the attention of medical professionals and policy makers alike. This applies in particular in low and middle-income countries that form the major chunk of the global population. The emerging epidemics of obesity, cardiovascular disease (CVD) and diabetes constitute the crux of this remarkable change. Among these entities, obesity has become a massive epidemic causing serious public health concern and contributed to 2.6 million deaths worldwide every year. Obesity is an independent risk factor for CVD. Obesity is associated with an increased risk of morbidity and mortality as well as reduced life expectancy. The last two decades of the previous century have

witnessed dramatic growth in health care costs due to obesity and related issues among children and adolescents.(12)(<https://itunes.apple.com/us/book/obesity-in-children-adolescents-report/id514319986?mt=11>)

For children and adolescents, overweight and obesity are defined using age and sex specific norm grams for body mass index (BMI). Children with BMI equal to or exceeding the age-gender-specific 95th percentile are defined obese. Those with BMI equal to or exceeding the 85th but are below 95th percentiles are defined overweight and are at risk for obesity related co-morbidities. Health care professionals and parents are just realizing the effects of childhood obesity. The high incidence of obesity causes increased blood pressure, diabetes and also decreased levels of self-esteem and depression in the population. Obesity is prevalent in both developing and developed countries, but the latter has more cases.(13)(<http://www.a-id.org/pdf/obesity-in-children-adolescents.pdf>)

Childhood obesity affects both developed and developing countries of all socio-economic groups, irrespective of age, sex or ethnicity. It has been estimated that worldwide over 22 million children under the age of 5 are obese, and one in 10 children is overweight. A wide range of prevalence levels exists, with the prevalence of overweight in Africa and Asia averaging well below 10 per cent and in the Americas and Europe above 20 per cent. The proportion of school-age children affected will almost double by 2010 compared with the most recently available surveys from the late 1990s up to 2003. Obesity has become a serious public health concern affecting a significant portion of the population in countries like the US.(14)(<https://drbaljotbharaj.wordpress.com/2013/07/02/the-childhood-obesity-epidemic/comment-page-1/>)

A cross-sectional study conducted to investigate the prevalence of obesity in affluent school children of Delhi. The study covered over 4000 students. Anthropometric measurements and birth weights of all the students were recorded. It included both boys and girls in the range of 4-17 years. Of the subjects studied 22% were overweight, and 6% were obese. The results proved that the prevalence of obesity is rising among children because of their change in lifestyle. Children born with a birth weight of ≥ 3 kg intended to have higher Body Mass Index in their adolescents years and consequently in their adult years. Nutrition education can play a significant role in reducing the incidence of overweight/obesity and its associated complications.(14)(http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N007_1069.doc)

Overall, among adults aged at least 20 yrs. In 1999-2002, 65.1 percent were overweight, and 30.4 percent were obese. Among children aged 6 through 19 yrs. in 1999-2002, 31.0 percent were overweight, and 16.0 percent were obese. Asian countries are not immune to this phenomenon. For example, in China, the prevalence of overweight and obesity among children aged 7-9 yrs. Increased from 1-2 per cent in 1985 to 17 per cent among girls and 25 per cent among boys in 2000. Research conducted on the factors affecting the prevalence of overweight among 12-17 year urban adolescents in Hyderabad, India. The problem of overweight and obesity is not confined only to developed countries but is also widely prevalent in developing countries. The study confirmed that regular physical exercises, doing household activities, regulated television viewing, and healthy eating behaviors could contribute to control overweight and obesity.(15)

(http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N007_1069.doc) Also, obesity prevalence varies across socio-economic strata. In developed countries, children of low socioeconomic status are more affected than their affluent counterparts. The opposite is observed in developing countries: children of the upper socio-economic strata are more likely than poor children to be obese. A study conducted to investigate the prevalence of childhood obesity. The study showed that boys had a higher prevalence of obesity (27.5%) than girls (22.5%). The risk factors for childhood obesity were a high birth-weight, longer television and computer-using time, a lower fruit-eating frequency, short sleeping hours and parental obesity. This study identified that the children had a higher prevalence of obesity; further, not only individual lifestyles but also socioeconomic factors could influence childhood obesity.(16)(http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N007_1069.doc)

Indian data regarding current trends in childhood obesity are emerging. A recent study conducted among 24,000 school children in

South India showed that the proportion of overweight children increased from 4.94 percent of the total students in 2003 to 6.57 percent in 2005 demonstrating the time trend of this rapidly growing epidemic. Socio-economic trends in childhood obesity in India are also emerging. A study from northern India reported a childhood obesity prevalence of 5.59 per cent in the higher socio-economic strata when compared to 0.42 per cent in the lower socio-economic strata.(17)(<http://ijirse.in/docs/June14/IJRSE140606.pdf>)

(<http://www.a-id.org/pdf/obesity-in-children-adolescents.pdf>)

The National Health and Nutrition Examination Survey (NHANES) indicate that the prevalence of obesity is increasing in all pediatric age groups, in both sexes, and in various ethnic and racial groups. Many factors, including genetics, environment, metabolism, lifestyle, and eating habits, are believed to play a role in the development of obesity. However, more than 90% of cases are idiopathic; less than 10% are associated with hormonal or genetic causes.¹²For these situations we can protect the children by giving little education.

Research conducted on Prevalence of overweight and obesity among the affluent adolescent's school children of Amritsar, Punjab. The age group was 10-15 years. A total of 640 children (323 boys and 317 girls) were measured for height and weight. Overweight and obesity were assessed using age and Body Mass Index. It was found that 9.91% boys and 11.99% girls were overweight and 4.95% boys and 6.31% girls were obese. The prevalence of overweight and obesity among the affluent children in Amritsar was as high or greater as in some industrialized countries.(17)(<http://emedicine.medscape.com/article/985333-overview>)(http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N007_1069.doc)

Research conducted on Predicting obesity in early adulthood from childhood and parental obesity. The results showed that strategies for prevention of overweight and targeted interventions for prevention of the progressions of overweight to obesity are urgently required in school-aged children to stem the epidemic of overweight in the adult population(18)

The investigator conducted a study to identify the prevalence of obesity among the school going adolescents in Vellore city. Permission from the CEO was obtained to do the survey in the schools. Permission from the Principals of the schools was also obtained. Ethics approval was granted by the College of Nursing Research & Ethics Committee, and the IRB, CMC Vellore. Permission from the the Nursing Superintendent as well from the Head of Pediatric Endocrinology and Pediatric Nursing department was also obtained

Confidentiality of the data collected was assured and maintained. CTRI Clearance was sought soon after getting the approval from IRB, CMC Vellore.

Four private schools and four government schools were selected using random sampling technique. One hundred and fifty samples were collected from each school. Fifteen adolescent boys and fifteen teenagers were chosen from each grade making a total of 30 from each class. Children from 6th, 7th, 8th, 9th and 11th standards were selected. A total of 150 adolescents were selected from each school. The tenth and twelfth graders were excluded as per CEO's recommendation as they had their board exams. There were totally 1200 children on whom the study was conducted.

Analysis of the findings revealed that the prevalence of overweight was 10% and obesity was 2% among these adolescents in selected schools in Vellore city.

Children have the essential part to play with the help of the community, not merely by being kept healthy' by adults. But in passing on health messages to younger brothers and sisters and by jointly co-operating to become a positive force for health. Nurses play a very vital role in the health care team need to address the issue of adolescent obesity, focusing more on the prevention. (http://www.rguhs.ac.in/cdc/onlinecdc/uploads/05_N101_12324.doc)

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