



## PREVALENCE AND RISK FACTORS OF CHILDHOOD OVERWEIGHT AND OBESITY

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### ABSTRACT

Issue of childhood overweight and obesity has become a serious public health concern throughout the world. Overweight and obesity are encountered in clinical practice and have major public health implications. These are complex conditions, with serious social and psychological dimensions. Some socio demographic characteristics and unhealthy dietary habits are responsible for childhood overweight and obesity. According to World Health Organization (WHO) obesity is measured as global epidemic in developed and also in developing countries. Some studies shows association between childhood overweight, obesity and the long term increase in mortality and morbidity. Few studies determined several risk factors that can affect childhood overweight and obesity and strongly associated with chronic health problems persisting into adulthood. Regular assessment of weight of child, healthy dietary habits and physical activity can reduce childhood overweight and obesity and increase the health quality.

**KEYWORDS:** Childhood overweight, Obesity, BMI, Prevalence, Risk factors, Dietary habits.



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## INTRODUCTION

Overweight and obesity are rapidly emerging as global epidemic that have major public health implications<sup>1</sup>. In the past few decades obesity and overweight have become a serious public health issue. Childhood overweight and obesity has received worldwide attention because of its increased prevalence globally<sup>2</sup>. According to World Health Organization about 43 million children were obese and overweight in 2010. About 35 million children were from developing countries<sup>3</sup>. In the last few years prevalence of overweight and obesity has increased. Obesity is a serious and complex condition that affects social and psychological aspects of all age and socioeconomic groups of both developed and developing countries<sup>4</sup>. Deposition of excess body fat or adipose tissue is known as obesity. Overweight and obesity both are measured by Body Mass Index (BMI). For estimating body fat, BMI is a useful tool. With age Body Mass Index changes. Child's body mass index (BMI) percentile is determined by child's weight, height as well as age and sex. For Asians according to WHO, a BMI of 23 – 24.9 kg/m<sup>2</sup> is defined as overweight and > 25 Kg/m<sup>2</sup> as obese. A desirable BMI is considered to be between 18.5 and 22.9 kg/m<sup>2</sup><sup>5</sup>. Childhood obesity is a complex interaction of genetic, environmental and behavioural factors<sup>6</sup>. Life style changes like (physical activity, leisure and modernization) and nutrition transition which are in relation with changing economic, social and health factors increase the prevalence of obesity<sup>7</sup>. Higher fat, higher refined carbohydrates and also consumption of sugar and a marked increase in animal food products which is contrasted with a fall in consumption of cereal, vegetable, and fruits leads to development of overweight and obesity<sup>8</sup>. Increased prevalence is also due to industrialization, changing lifestyles with the associated increasing rate of television viewing and playing with computer games<sup>9</sup>. Numerous studies have shown that prevalence of childhood obesity is increased due to sedentary behaviours like watching television and playing computer games<sup>10</sup>. According to American Academy of paediatrics parents should limit children's total entertainment media time like watching

television and playing videos games, to no more than two hours per day. Watching TV more than recommended is a risk factor for having obesity, Veldhuis et al<sup>11</sup>.

### **RISK FACTORS OF HEALTH PROBLEMS ASSOCIATED WITH OVERWEIGHT AND OBESITY**

It is suspected that childhood overweight and obesity are strongly associated with chronic health problems persisting into adulthood causing severe consequences on adult health like diabetes type- 2, sleep apnoea and metabolic syndrome<sup>8</sup>. Among obese children several cardiovascular risk factors, arterial hypertension, dyslipidaemic syndrome and non alcoholic fatty liver diseases are noticed<sup>12</sup>. Overweight and obesity in children are affected by many factors such as parents' gender, age and education, mother's works status, duration of breast feeding and weight at birth<sup>13</sup>. People with a body mass index > 35 have a 40 fold higher risk of developing diabetes than non – obese persons. This indicates risk of diabetes increases with increasing weight. In obese persons osteoarthritis, respiratory diseases and particularly sleep apnoea are more common<sup>14</sup>. Increased systolic and diastolic blood pressure, stroke, and certain forms of cancer are associated with obesity<sup>15</sup>. Increased lipids and lipoproteins are risk factors for ischemic heart disease. Atherogenesis is mainly due to elevated levels of triglyceride, cholesterol and LDL – C which is risk factors for developing cardiovascular diseases (CVD) in overweight and obese persons<sup>16</sup>. Dyslipidaemic persons have higher sugar levels than the normolipemic persons and are more susceptible to diabetes. Overweight and obese persons tend to be insulin resistant, glucose intolerant, dyslipidemic and also Hyperinsulinemic<sup>17, 18, 19</sup>. In overweight persons, dyslipidaemia may be due to insulin resistance which might be due to genetic factors. The risk of developing adult obesity in children aged > 9 years who are obese is up to 80% at age 35 years<sup>20</sup>. In the past 30 years the percentage of overweight children and adolescents were doubled in the United States of America (USA)<sup>21</sup>. The high

prevalence of overweight and obesity is a cause of concern, as obesity is associated with several complications that increase both morbidity and mortality.

### **FACTORS ASSOCIATED WITH PREVALENCE OF CHILDHOOD OVERWEIGHT AND OBESITY**

#### **(a) SOCIO – DEMOGRAPHIC CHARACTERISTICS**

The prevalence of overweight and obesity among children, whose birth weight is less than normal is less, whose birth weight is more than normal. Other factors like family size, birth order, and parental education affect the prevalence of overweight and obesity. Children in lower and middle income countries, especially the urban areas follow a western lifestyle and so face a significant and rapidly growing epidemic of childhood obesity<sup>22</sup>. So the term obesity implies that obesity is a characteristic of the populations not only of individuals. In some developing countries the unhealthy lifestyles are described as the life style syndrome or the “New World syndrome”. This is the cause for the very high rates of obesity in developing nations. In some nations childhood obesity is still considered as a sign of healthiness and high social class<sup>23</sup>.

#### **(b) DIETARY FACTORS**

Some studies show prevalence of obesity is more in children not having breakfast at all compared to children having breakfast always. But the association between breakfast and obesity is not significant. Some studies show intake of chocolate and fried potatoes are significantly associated with higher prevalence of obesity. Intake of other food stuffs (milk, strawberry juice, beverages, cheeps potatoes, cake, biscuits and fruits) also has higher prevalence of childhood overweight. Also school children who have a habit of eating between meals always show obesity prevalence more than those with no habit of eating between meals. Habit of eating fast foods frequently (at least three times/ week) is also accompanied with higher prevalence of obesity<sup>24</sup>. Fast food meal contains high levels of saturated fat, low quality carbohydrates, more sugar and low fibre content. This type of eating habits give negative effect, which result into

cardiovascular diseases and diabetes type 2. During the past few years the teenage and childhood fast food obesity epidemic is rapidly rising. Fast food products have high levels of refined sugar, sodium, oil and refined flour, though they are very cheap and testier. So childhood overweight and obesity is interrelated with fast food<sup>24</sup>. These unhealthy dietary habits like excessive eating of fried potatoes, chocolates and frequent fast meals increase the prevalence of childhood obesity. Sedentary life style along with fast food, obesity is becoming one of the top causes for type 2 diabetes and cardiovascular diseases. Product of fast food leads much strain to the body to produce insulin. If the child takes fast food very often, one day the body will lose the ability of producing insulin, resulted type 2 diabetes. Most of the children spend more time on watching TV without any physical activity and also have fast food products result in overweight and obesity<sup>25</sup>. All the pre- packed food items, beverages, fast foods and physical inactivity leads to childhood overweight and obesity epidemic, as a major health problem not having an end soon<sup>24, 25</sup>. Ultimately global increase in obesity is attributable to increased intake of energy dense food, decreased physical activity, industrialization and urbanization<sup>26</sup>.

### **CONCLUSION**

Childhood overweight and obesity is currently a major health problem in many countries of the world. As a worldwide problem obesity affects all levels of society and is described as a global epidemic. The prevalence is high in European countries. Both are also most common disorders which encountered in clinical practice and has major public health implications. BMI is an indicator of overweight and obesity and measured as a possible indicator of the risk of diabetes. Diabetes and hypertension prevalence is significantly higher in overweight and obese children than in normal weight children. There is a positive association of BMI with diabetes and hypertension. It clearly indicates the need of creating awareness regarding childhood overweight and obesity and related chronic diseases like hypertension, diabetes type 2, sleep apnoea, other cardiovascular diseases,

which would otherwise become emerging problems in near future. Overweight and obesity in childhood are known to have significant impact on both physical and psychological health and this should be well demonstrated. Interventions and multiple strategies are warranted to modify food habits, education through mass media creates awareness among school children. There is a significant association between some unhealthy dietary habits (such as excessive eating of fried potatoes, chocolates, frequent fast meals, fast foods) and increased prevalence of childhood overweight and obesity. The American

Academy of Paediatrics (AAP) recommends routine overweight and obesity screening of children at age two. According to AAP, at least once a year a health care provider should assess a child's weight status, so that childhood overweight and obesity would be avoided. Strategies at school should aim at encouraging healthy dietary habits, such as increasing fibre intake, reducing consumption of junk foods and increase levels of physical activity starting in childhood, may have important effects on public health. It can reduce childhood overweight and obesity and increase the health quality.

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