

Determinants of Preventable Obesity: A Recent Outlook

Naveenta Gupta¹, Sonia Garg¹, Meenal Batta², Shilekh Mittal³ and Khushdeep Singh Arora^{*4}¹Professor, Department of Physiology, Guru Gobind Singh Medical College, Faridkot, Punjab - 151203²Assistant Professor, Department of Physiology, Guru Gobind Singh Medical College, Faridkot, Punjab - 151203³Professor, Department of Forensic Medicine, Guru Gobind Singh Medical College, Faridkot, Punjab - 151203⁴Professor, Department of Physiology, Dashmesh Institute of Research and Dental Sciences, Faridkot, Punjab – 151203

Abstract

Obesity has been declared an epidemic by World Health Organization (WHO). Overweight and obesity along with malnutrition are on increasing trend in developing as well as developed countries. Rise in obesity is very important risk factor of non-communicable diseases like hypertension, diabetes mellitus, dyslipidemia, ischemic heart disease, liver diseases and cancer with a high risk of mortality and morbidity. Etiology of obesity is multifactorial, involving a complex interaction among genetic, metabolic, hormonal and environmental factors. Obesity is a disease that can be prevented as well as cured.

Keywords: Obesity, Modifiable causes, Prevention.

*Correspondence Info:

Dr. Khushdeep Singh Arora
Professor,
Department of Physiology,
Dashmesh Institute of Research and Dental
Sciences, Faridkot, Punjab – 151203

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1. Introduction

Obesity is one of the most common, yet one most neglected, health problems in world. According to World Health Statistics Report 2012, globally one in six adults are obese and nearly 2.8 million people die each year due to overweight or obesity [1]. Obesity predisposes to major health diseases as cardiovascular diseases, metabolic syndrome, cerebrovascular diseases, liver and gall bladder diseases, osteoarthritis and cancers [2]. In India, obesity is an emerging health problem leading to alarming rise in deaths due to morbidities related to obesity [3].

According to WHO criteria, total body fat is measured by body mass index (BMI), a simple marker of obesity [4]. BMI >18.0-22.9 kg/m² is taken as normal, 23.0-24.9 kg/m² as overweight and >25 kg/m² as obese [5]. Visceral adiposity, more closely associated with metabolic syndrome, is measured by waist circumference [WC]. Cut off values of obesity by waist circumference are >102cm in males, >88cm in females [5].

Obesity is a complicated, multifactorial disease occurring due to interaction of genetic, environmental, behavioural, metabolic, hormonal, psychological,

neurogenic and many other factors [6]. Many of these factors can be prevented with proper knowledge about the factors contributing to obesity and its consequences. In this article, we will look into modifiable causes of obesity.

2. Modifiable causes of obesity

2.1 Socioeconomic status

Socio-economic status now-a-days is considered to be the greatest risk factor for excess adiposity in developing countries [7-10]. Individuals belonging to higher monthly per-capita income were found to have two-fold higher risk for obesity. It was reported that education, monthly income and marital status have an inverse effect on adiposity in urban adults [9-12]. Also, even rural women with at least 14 years of education were found to have eight-fold higher risk of being overweight as compared to non-educated women in Bangladesh [10,13]. Higher education and socio-economic status probably lead to more awareness towards nutrition and specific food choices [high caloric or fat dense] thus leading to excess adiposity [13].

Rural population has more rapid increase in obesity level from 2% to 17.1% in last decade due to

substantial improvement in living conditions in rural areas in terms of transport facilities, medical care, food habits, educational status and family income along with easy access to city and television watching resulting in changes in life style thus ultimately leading to significant increase in total body fat as well as abdominal obesity in both sexes. Problem of obesity is expanding from urban and rich women to poor and rural people with disappearance of rural-urban and rich-poor discrepancy [14]. This is a risk factor that cannot be directly modified but by modifying the factors associating it with obesity and by making the society aware of the risk factors related to obesity.

2.2 Psychological factors

Another factor that may contribute to obesity in some people is stress. Binge eating is common during stressful conditions of life, as death of parent or sibling, severe illness, mental depression. Food seems to be a way of releasing tension [6]. Stress in these situations can be minimized with psychiatric counselling.

2.3 Childhood obesity

Over nutrition of children both in infancy and later years of childhood by excessively attentive parents can lead to lifetime of obesity. Obesity in children is of hyperplastic type as new fat cells are rapidly formed during first few years of life to store the more amount of fat due to overeating. Number of fat cells in obese children is three times than in normal children [6]. Due to obesity in children, they are more prone to co-morbidities related to obesity in early life. Children should be having nutritious food as much is required by them along with lots of physical activity in schools as well as at home.

2.4 Dietary factors

Abnormal feeding behaviour in terms of more intakes of calories than our body requirement, decreased energy expenditure, or a combination of both has led to a positive energy balance and a marked increase in weight. Increased self-reported energy intake was found to be associated with obesity [15].

The rapidity with which obesity has increased in past 20-30 years suggests the role of behavioural and environmental factors, rather than genetic factors in development of obesity [6].

In a study by Nutrition Foundation of India (1999), obese individuals were having significantly higher consumption of refined oil and saturated fats in form of mainly fried food in their diet [16].

Apart from higher calorie intake, consumption of snacks has impacted weight positively while the type of food either vegetarian or mixed does not affect the weight status significantly [16].

Over time, a change in our eating habits has contributed to the obesity [17]. Dietary changes in form of high fat and energy-dense micronutrient-poor foods is convincingly related with unhealthy weight gain [4,17,18]

Even with availability and consumption of lower-fat food items these days, there is rise in childhood and adult obesity due to higher per capita energy availability [19], increased consumption of fast food that is prepared and consumed outside the home along with soft drinks [4,19,20], larger portion sizes [20,21] and increased meat consumption [22]. Traditional diets that were rich in complex carbohydrates and fibre such as fruits and vegetables were negatively associated with BMI have been replaced by diets high in sugar and fat content and animal products [18,22,23]

Increased frequency of eating meals that too of poorer nutritional quality higher in total energy, total fat, saturated fat, cholesterol and sodium with less fibre and calcium are likely contributors to the rising prevalence of obesity in most of developed countries [19,24].

Obesity in adults is both of hyperplastic as well as hypertrophic type as there is increased number as well as increased size of adipocytes. There may be four times adipocytes along with twice the lipid content in adipocytes in extremely obese person compared to lean person [6].

2.5 Physical activity

Rising levels of obesity may be more closely related to changes in energy expenditure along with high energy intake. Mild physical activity, sedentary behaviour and hence obesity is common in middle aged men and women. Sedentary behaviour may be due to greater economic development in metro cities [25].

Although number of health clubs, recreational facilities and exercise equipment in homes have grown in last years. However, sedentary activities, such as television watching and videogame playing, have also increased which is more commonly associated with greater weight gain in children and adults [26].

With advances in technology, there has been a greatly reduced dependence on walking and cycling for transportation, work and daily living. Household physical activity has decreased due to labor-saving devices. Occupational energy requirements have also dropped as mechanized labor aids and hence jobs have become more sedentary [27].

People should be educated to participate in physical activity, household works, games and sports should be emphasized to lower the prevalence of overweight and its ill-effects. Facilities for outdoor games in schools, with compulsory hours of sports and games should be provided [28].

2.6 Secondary causes of obesity

Alcohol consumption [8], intake of some drugs (phenothiazines, antidepressants, antiepileptics, steroids, antihypertensive agents) and neuroendocrine diseases (hypothalamic, pituitary, thyroid and adrenal), reproductive diseases (polycystic ovarian disease) are associated with obesity [6]

3. Conclusion

Obesity is a complex, socioeconomic and multifactorial but preventable disease that further poses a serious risk for the development of chronic diseases thus increasing the risk of overall mortality. Lifestyle modification in terms of decreased energy intake and increased physical activity are the key factors to get rid of obesity. Society should be educated about nutritional diet and benefits of physical exercise to live a productive and disease-free life.

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