

IMPACT OF OBESITY ON HEALTH

"What you eat today, they decide your life tomorrow."

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Abstract- Obesity is recognized as a big public health problem and ranks as the fifth leading cause of death worldwide. being overweight and obese is one of the major lifestyle diseases that cause other health problems and are responsible for many chronic diseases such as cancer, diabetes, metabolic syndrome, and cardiovascular disease. The World Health Organization also predicts that 30% of deaths worldwide in 2030 will be caused by lifestyle-related diseases, which should be prevented through appropriate identification and treatment of relevant risk factors and behavioural interventions. Therefore, it is important to detect and diagnose obesity as early as possible.

Keywords: Health, Obesity, lifestyle, Risk factors.

INTRODUCTION:

According to WHO- "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Health promotion is a process in which people take more control over their health and improve it. To reach a state of complete physical, mental, and social well-being, individuals or groups must be able to recognize and fulfil their desires, meet their needs, and change or cope with their environment. Health is a positive concept that emphasizes social and personal resources as well as physical capabilities. Therefore, health promotion is not only the responsibility of the health sector but goes beyond healthy lifestyles and well-being. "

Obesity has become a global epidemic and is now one of the major public health problems worldwide. The etiology or cause of obesity is an imbalance between the energy taken in from food and the energy expended. Excess energy is stored in fat cells, which become enlarged and/or increased in number. This adipocyte hyperplasia and hypertrophy is the pathological lesion of obesity. Enlarged adipocytes pose clinical problems associated with obesity due to excess weight or mass, or due to increased secretion of free fatty acids and numerous peptides from enlarged adipocytes. Overweight and obese children are more likely than children of healthy weight to become obese adults at a younger age and to develop non-communicable diseases such as diabetes and cardiovascular disease. It also increases the risk of cancer, premature death, and later disability. Some evidence suggests that breastfeeding reduces the risk of later childhood obesity.

The 2017 Global Nutrition Report showed that 2 billion adults are overweight/obese worldwide and 41 million children are overweight. In 2019, an estimated 38.2 million children under the age of 5 were overweight or obese. The WHO estimates that at least 2.8 million people die each year from overweight or obesity. Over the last 30 years, obesity has increased worldwide. Unexpectedly, it is also increasing in low- and middle-income countries due to uncontrolled urbanization and dietary change (a shift in dietary habits from traditional diets to Western diets). Obesity rates among children under five have increased slightly globally. In 1975 obesity in children aged 5-19 was relatively rare, but in 2016 it is becoming very common.

Body mass index (BMI) is a simple ratio of body weight to height that is often used to classify fat and obesity in adults. It is obtained by dividing a person's weight in kilograms by the square of their height in meters (kg/m²). Sarcopenic obesity is defined as the loss of skeletal muscle and excessive

accumulation of body fat. Clinically, it can be diagnosed by muscle biopsy, computed tomography or magnetic resonance spectroscopy, bioelectrical impedance analysis (BIA), and dual-energy X-ray.

Classification	BMI (Kg/m ²)	Risk of co-morbidities
Underweight	<18.5	Low
Normal weight	18.5–24.9	Average
Overweight	25.0–29.9	Mildly increased
Obese	≥30	Moderate
Obese I	30.0–34.9	Moderate
Obese II	35.0–39.9	Severe
Obese III	≥40	Very severe

Table 1. BMI classification of adult weights based on WHO schema (BMI = weight in kg/height in meters²).

factors affecting obesity

Genetic factors: - Evidence suggests a family history of obesity and genetic variation as a risk factor for obesity.

Metabolic factors: - Excess food is stored in adipose tissue (AT) in the form of triglycerides, which will be used as food by other tissues through lipolysis when there is a food shortage. There are two main types of AT, white AT (WAT) and brown AT, a specific form of fat storage involved in non-shivering thermogenesis via lipid oxidation-mediated thermogenesis. Although WAT was historically thought of only as an energy store, it is now known that this adipose tissue functions as an endocrine organ, producing and secreting many hormones, cytokines, and metabolites (called adipokines) to maintain energy balance.

Socio-demographic factors: - Socio-demographic factors, such as advanced age, marriage, low income, urbanization, gender, private school education, easy access to solid waste, and economic independence. law, rural-to-urban migration, grocery stores eliminating local businesses, higher education, and fertility leading to fire or energizing food. Another cause of obesity, mostly in developing countries, is malnutrition leading to obesity and metabolic diseases early in life.

Behavioural habits (diet and lifestyle):- Obesity is often caused by a lack of energy and expenditure due to a sedentary lifestyle and excessive food intake. Changes in dietary patterns and physical activity are often caused by environmental improvements and social changes and a lack of policy support in areas such as consumption, health, agriculture, transport, urban planning, environment, food processing, distribution, trade, and education.

Inappropriate Dietary Habit- Diet is the most important part of our health. Eating energy-rich foods such as sweets, sugar, soft drinks, oils, and alcohol is a major cause of obesity and chronic disease. Different researchers say that a culture of dieting, eating pastries, eating processed foods (refined carbohydrates), drinking too much, and eating junk or bad food can lead to obesity. Looking at electronic screens for more than 2 hours causes obesity because the brain does not just use glucose while watching, so the metabolism of carbohydrates to glycogen and fat continues to increase. In times of stress, cortisol levels increase, which is responsible for producing belly fat from a healthy diet (every day).

Pathology of excess fat

Childhood obesity is associated with an increased risk of obesity, premature death, and disability in adulthood. Obese children suffer from respiratory distress, increased risk of fractures, high blood pressure, early signs of cardiovascular disease, insulin resistance, and psychological effects.

Diseases for which obesity increases the risk to fall into one of two pathophysiological categories. The first category of disorders is attributed to increased fat mass itself. These include the stigma of obesity and its associated behavioural responses, osteoarthritis, and sleep apnea. Obesity is a risk arising from metabolic changes associated with excess fat. These include diabetes mellitus, gallbladder disease, hypertension, cardiovascular disease, and some cancers associated with obesity.

The fat cell can be viewed as a type of endocrine cell and adipose tissue as an endocrine organ. It is the hypertrophy and/or hyperplasia of this organ that is the pathologic lesion in obesity. After the identification of adiponectin in the fat cell, several other secretory peptides are found. Leptin is the most important and secures the role of the adipocyte as an endocrine cell and fat as an endocrine organ. From the pathophysiological perspective, however, the release of free fatty acids may be the most important.

Fat distribution is important for adipocyte responses to endocrine products. Fat accumulation in visceral adipocytes is regulated by many factors. Androgens and estrogens produced by the gonads and adrenal glands and the peripheral conversion of 4-androstenedione to estrone in adipocytes are important for body fat distribution. Male or android fat distribution and female or gynoid fat distribution occur at puberty. Although increased visceral fat accumulation in adulthood is related to gender, cortisol effects, decreased GH, and changes in testosterone levels are important in age-related fat accumulation. Increases levels of insulin resistance associated with obesity and hyperinsulinemia. Together, hyperinsulinemia and insulin resistance increase the risk of comorbidities.

Some skin changes are associated with obesity. Cracks or lines are very common. Acanthosis nigricans, hyperpigmented hyperpigmentation of neck folds, joints, and extensor surface, occurs in many obese people but is not associated with malignancy risk. Hirsutism in women may be associated with changes in this population.

Obesity during pregnancy is associated with poor outcomes in infants (bone fractures, respiratory distress, brain damage, sepsis, convulsions, hypoglycemia). It also increases the number of gynaecological diseases and diseases.

Central fat is associated with kidney damage. It is also associated with urinary incontinence. Obesity, especially in the middle, is associated with the abdomen, which puts pressure on the pelvic floor. Polycystic ovary syndrome (POS) is associated with obesity. Cholesterol production is linear with body fat; About 20 mg of extra cholesterol is produced for every kilogram of body fat gained. Therefore, the amount of cholesterol synthesized every day for every 10 kg increase in body fat is equal to the amount of cholesterol contained in the egg yolk. More cholesterol is excreted with bile. High cholesterol is associated with bile acids and phospholipids in bile, causing cholesterol to accumulate in the gallbladder.

Assessment Methods of Obesity

There are four ways to measure nutritional status: anthropometric, biochemical, medical, and nutritional methods. Two nutritional assessment methods (anthropometric and biochemical).

- Anthropometric Examination: - Obesity can be measured by BMI, waist circumference (WC), body fat percentage (BFP), and skin thickness (SFT).

- Biochemical method. There are two types of biochemical methods: functional methods and static methods. Functional methods are used when a deficiency or excess of nutrients leads to functional impairment.

Biomarkers- A biomarker is a biological indicator of a particular disorder in our body. Various categories of biomarkers have been reported worldwide. Widespread ones include microRNAs, inflammatory biomarkers, adipocytokines, oxidative stress, gut microbiota, nutrient levels, and blood cell profiles.

MANAGEMENT**“Prevention is better than cure”**

Obesity can be prevented or treated as follows-

Health Education: The dissemination of organizational health education and the development of nutritional standards also have a significant impact; weight loss programs and diabetes prevention are effective programs to reduce obesity. Establish a non-lifestyle plan: physical activity, reduce sedentary time, reduce fast food, sleep 7-9 hours a day, and avoid smoking and drinking Alcohol abuse is a good intervention to reduce obesity.

Healthy Food Subsidies and Junk Food Taxation: Governments can reduce obesity by subsidizing healthy food or increasing junk food taxes.

Surgery: Metabolic and bariatric surgery in children provides evidence-based and effective treatment for severe obesity and related complications.

Advertisements and promotions prohibit high-fat, sugary, and salty foods and promote new healthy diets and weight loss plans.

Conclusion:

Obesity is a major public health problem. Living in an obese environment such as sedentary lifestyles, urban living, urban migration, high-energy diets, and lack of exercise are important factors to develop obesity. Many biomarkers such as microRNAs, adipocytes, oxidative stress, and microbiota show promise for obesity detection. Overall prevention is important to avoid the consequences of obesity.

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