OVERWEIGHT, OBESITY AND DIETS IN THE MODERN SOCIETY

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(Overview)

Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer. Diet and exercises are known to play a valuable role in the treatment and prevention of obesity and associated disorders such as hypertension, heart diseases, and diabetes. Approximately 1.2 billion people in the world are overweight and at least 300 million of them are obese [30]). According to the data of World Health Organization, obesity is one of the 10 most preventable health risks. Yet, at least 300,000 deaths every year in the United States alone can be linked to obesity [26].

Obesity prevalence has risen three-fold in many European countries since the 1980, and the numbers of those affected, are continuing to increase at an alarming rate, particularly among children [16].

Key facts about overweight and obesity according to WHO [28]:

- Worldwide obesity has nearly doubled since 1980.
- In 2008, more than 1.4 billion adults, 20 and older, were overweight.
- Of these over 200 million men and nearly 300 million women were obese.
- 35% of adults aged 20 and over were overweight in 2008, and 11% were obese.
- 65% of the world's population lives in countries where overweight and obesity kills more people than underweight.
- More than 40 million children under the age of five were overweight in 2011.
- Obesity is preventable.

The prevalence of obesity is increasing worldwide. The National Health Examination Survey (NHES) and the National Health and Nutrition Examination Surveys (NHANES) are cross-sectional health examination surveys that are representatives of the American population. These surveys were conducted at the time points of: 1960–1962 (NHES), 1971–1975 (NHANES I), 1976–1980 (NHANES II), 1988–1994 (NHANES III), and 1999–2000 (NHANES 1999–2000). In adult ages 20–74, these surveys reported an alarming increase in the percent of respondents who were obese (i.e., 14.6, 14.3, 14.5, 22.5, and 30.4, respectively) [12].

Perhaps of greater concern is that the prevalence of morbidly obese Americans, is estimated to have increased three-fold from 1990 to 2000 [11]. Overweight has increasing tendency in children and adolescents as well. From the NHANES I survey to the NHANES 1999–2000 surveys, prevalence of obesity has increased 5.4% in 2–5 year old, 11.3% in 6–11 year olds, and 9.4% in 12–19 year olds. The data from the NHANES III compared with the most
Recent NHANES 1999–2000 data has shown that the overweight prevalence in all age groups has increased significantly. These findings indicate that obesity has become a major health concern in the United States [12]. The fundamental cause of obesity and overweight is an energy imbalance between calories consumed on one hand, and calories expended on the other hand. However, more recent researches has suggested that genetic, physiological, and behavioral factors also play a significant role in the etiology of obesity [7,12,22].

A crude population measure of obesity is the body mass index (BMI), a person’s weight (in kilograms) divided by the square of his or her height (in meters). (BMI=kg/m²).

According to WHO

- a BMI greater than or equal to 25 is overweight
- a BMI greater than or equal to 30 is obesity.

(WHO 2013)

There is evidence that risk of chronic disease in population increases progressively from a BMI of 21. (29). Cockram and colleagues reported that obesity and its related diseases such as type 2 diabetes have also been increasing in the Asia-Pacific region of the world. Obesity, especially central obesity, seems to be a primary reason for this increased rate of type 2 diabetes [6]. Many low- and middle-income countries are now facing a "double burden" of disease: as they continue to struggle with the problems of infectious diseases and under-nutrition; at the same time they are experiencing a rapid increase in risk factors of NCDs such as obesity and overweight, particularly in urban settings. It is not uncommon to find under-nutrition and obesity existing side-by-side within the same country, the same community and even within the same household in these settings [27].

This double burden is caused by inadequate pre-natal, infant and child nutrition which is then followed by exposure to high-fat, energy-dense, micronutrient-poor foods and a lack of physical activity as the child grows older (Tab.1).

Recent US data show that 82.1 percent of Black women and 75.7 percent of Hispanic women are overweight or obese compared to 59.5 percent of White women [10]. In addition, over half of Black women are obese (versus 38.8 percent of Black men and 32.2 percent of White women) [10]. Extreme obesity continues to be higher among women (8.1 percent) than men (4.4 percent) (Tab.2).

Table 1.
Table 2

<table>
<thead>
<tr>
<th>Country</th>
<th>Overweight or Obesity BMI</th>
<th>Obesity BMI $\geq 30$ kg/m$^2$</th>
<th>Extreme Obesity BMI</th>
</tr>
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(WHO, 2005).
Among the countries with the highest female obesity rates in 2008 were:

- United Kingdom - 23.9%
- Malta - 21.1%
- Latvia - 20.9%
- Estonia - 20.5%

(WHO 2008)

The prevalence of obesity and overweight resulted in appearance of different diets. High-protein, low-carbohydrate diets induce metabolic ketosis and are initially attractive, because they may induce quick weight loss. This initial weight loss, however, may be attributed in part to the diuretic effect from low carbohydrate intake and its effects on sodium and water loss, glycogen depletion, and ketosis. As the diet is sustained, loss of appetite associated with ketosis, leads to lower total caloric intake. High-protein diets of ≥30% kilocalories from protein, also can promote negative energy balance, due to significant restriction in the type and amount of foods eaten [5] . The structured eating plan, strict eating schedules, and limited tolerance for high-protein foods, reduce overall flexibility but offer initial appeal. These characteristics may help limit caloric intake and may account for weight loss. However, neither the efficacy of these diets compared with higher carbohydrate diets in promoting weight loss nor the safety of these diets has been documented in long-term studies [19].

Cross-national study gaining insight into young people's well-being, health behaviors and their social context has been conducted every 4 years since 1983[13].

The recent research data showed the high rate of diet usage in schoolchildren especially among girls. The girls keep dieting more frequently than boys 18 % and 8 % respectively. These numbers are increasing with age. 12 % of 11 year girls keep dieting while 23 % of 15 year girls follow this tendency. The numbers are not changed with age in boys [17].

The reason of dieting is permanent advertising of ideal figure in women. This ideal figure is quite different from biological reality, such women should not have menstrual cycle and be the potential candidates for infertility [20].
One of the most iconic findings in human behavioral ecology is the fact that women with waist-hip ratios (WHRs) of approximately 0.7 are most attractive and that this ratio indicates maximum fecundity and reproductive value [8].

Most diets that aim to lose weight quickly have the biggest enemy, i.e. yo-yo phenomenon. Yo-yo dieting or yo-yo effect, also known as weight cycling, is a term "yo-yo dieting" coined by Kelly D. Brownell at Yale University, in reference to the cyclical loss and gain of weight, resembling the up-down motion of a yo-yo. In this process, the dieter is initially successful in the pursuit of weight loss, but is unsuccessful in maintaining the loss long-term and begins to gain the weight back. The dieter then seeks to lose the regained weight, and the cycle begins again [4].

The reasons for yo-yo dieting are varied but often include embarking upon a hypo caloric diet, characterized by a low number of dietary calories usually 1,000–1,200 kcal/day that is initially too extreme. At first, the dieter may experience elation at the thought of loss and pride of their rejection of food. Over time, however, the limits imposed by such extreme diets, such as depression or fatigue, that make the diet impossible to sustain,

Ultimately, the dieter reverts to their old eating habits, now with the added emotional effects of failing to lose weight by restrictive diet. Such an emotional state, leads many people to eating more than they would have before dieting, causing them to rapidly regain weight [4, 19, 21].

This kind of diet is associated with extreme food deprivation, as a substitute for good diet and exercise techniques. As a result, the dieter may experience loss of both muscle and body fat, during the initial weight-loss phase (weight-bearing exercise is required to maintain muscle). After completing the diet, the dieter is likely to experience the body's starvation response, leading to rapid weight gain of only fat. This is a cycle that changes the body's fat-to-muscle ratio, one of the more important factors in health (2). A report by the American Psychological Association reviewed thirty-one diet studies and found that after 2 years of dieting, up to a third of dieters weighed more than they did before they began the diet. Yo-yo dieting can have extreme emotional and physical ramifications due to the stress that someone puts on themselves to lose weight quickly. The instant gratification of losing the weight eventually gives way to old eating habits, that cause weight gain and emotional distress (3).

WHO has developed the 2008-2013 Action plan for the global strategy for the prevention and control of no communicable diseases to help the millions who are already affected cope with these lifelong illnesses and prevent secondary complications. This action plan aims to build on, the WHO Framework Convention on Tobacco Control and the WHO Global Strategy on Diet,
Physical Activity and Health. The action plan provides a roadmap to establish and strengthen initiatives for the surveillance, prevention and management of NCDs.

At the individual level, people can:

- Achieve energy balance and a healthy weight;
- Limit energy intake from total fats and shift fat consumption away from saturated fats to unsaturated fats;
- Increase consumption of fruit and vegetables, as well as legumes, whole grains and nuts;
- Limit the intake of sugars;
- Increase physical activity - at least 30 minutes of regular, moderate-intensity activity on most days.

WHO, 2004

The implementation of these recommendations requires sustained political commitment and the collaboration of many public and private stakeholders. Governments, International Partners, Civil Society, NGO's and the Private Sector have vital roles to play in shaping healthy environments and making healthier diet options for children and adolescents affordable, and easily accessible. This is especially important for the most vulnerable in society – the poor people and children – who have limited choices about the food they eat and the environments in which they live.

REFERENCES

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SUMMARY

Obesity and overweight are one of the greatest health problems of the 21st century. Overweight and obesity are major risk factors for a chronic diseases, including diabetes, cardiovascular diseases, cancer. Its prevalence has risen three-fold in many European countries 1980s, and the numbers of those affected are continuing to increase particularly among children.

Overweight and obesity prevalence is linked with increased diet tendency especially in women population. The diets are accompanied with yo-yo phenomenon, also known as weight cycling. This is the cyclical loss and gain of weight, resembling the up-down motion of a yo-yo. In this process, the dieter is initially successful in the pursuit of weight loss but unsuccessful in maintaining the loss long-term and begins to gain the weight back.
WHO worked out practical recommendations regarding obesity prevention. Those recommendations require sustained political commitment and the collaboration of public stakeholders, private sector and the whole population.

**KEY WORDS:** Overweight, obesity, diets, yo-yo effect, BMI, women’s ideal figure, WHO’s Strategy
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