Review Article

Health Risks Linked to Overweight and Obesity

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Abstract

When a person overweight and obese, it means he is near from many health problems that are causes to more morbidity and mortality. So, there are a lot of risks factors for overweight and obesity, some of it can change such as lifestyle and environment and other cannot be changed such as age, gender and family history. The primary objective of this research is to determine the risks factors for overweight and obesity and linked to health problems. Then, brief explain some of common disease those are strong relationship with obesity and it will be mentioned some way to management weight and prevention weight gain. Example for the diseases that are related with obesity are: Cancer, diabetes, high blood pressure, cardiovascular disease, dyslipidemia, gallbladder disease, osteoarthritis and sleep apnea. As it has been reviewed in many researches, obesity have strong association with an increased risk of many of diseases and causes of mortality. In spite of the considerable effects of obesity, losing weight and management the healthy weight can reduce the risks significantly.

Keywords: Overweight; Obesity; Risk factor; BMI; Weight management.

Introduction:

In the past few years, it is estimated that there exist 1.6 billion adults were overweight and 650 million were obese around the worldwide (WHO, 2020). On the other hand, food experts suggested that 41 million children under 5 to 15 years of age were in fact overweight in 2018 (Seach *et al*., (2010). Overweight and obese persons are at risk of a number of medical conditions which can lead to further morbidity and mortality (Jitnarin *et al*., 2010; Shao *et al*., 2014).

From 1997 overweight and obesity have been considered a serious health problem around the world (Shao *et al*., 2014). Experiencing increasing rates of overweight and obesity happened on both developed and developing countries. Also, obesity caused several chronic diseases (De and Solvestris, 2019). Depend on the WHO report, in 2016 more than 340 million children and adolescents aged 5-19 were overweight or obese. In addition, data from different countries shows that the rate of overweight and obesity are increasing around the worldwide over time (Figure 1).

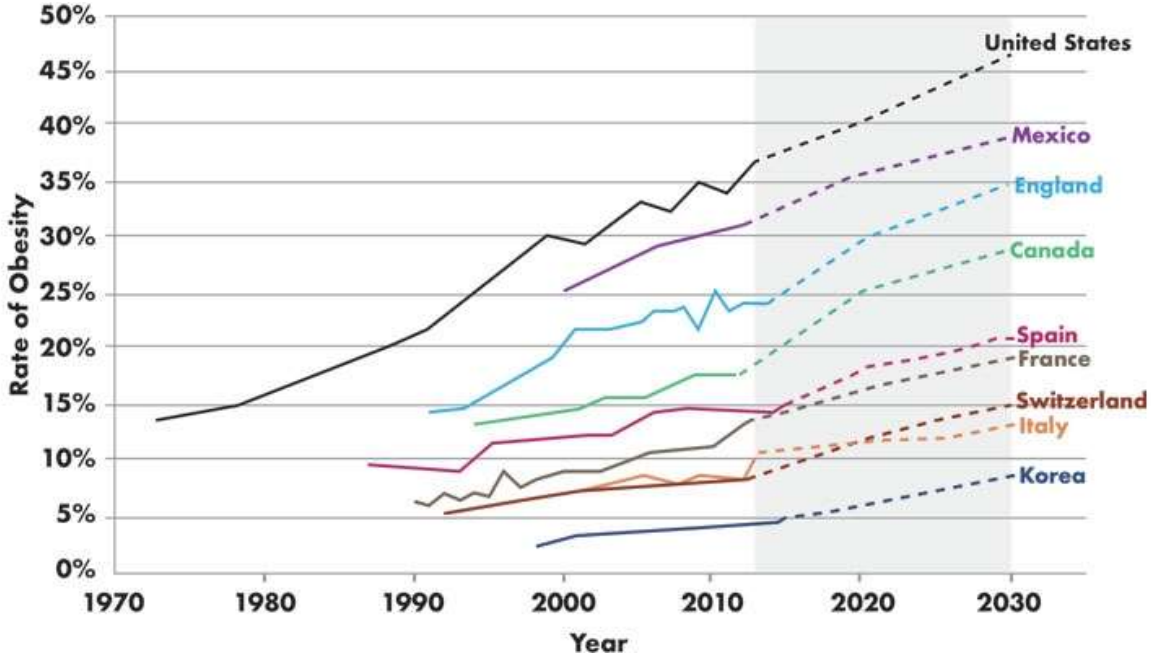

Figure 1. Rate of obesity in different countries (Lee, 2019).

Nowadays, the Body Mass Index (BMI) is commonly used to classify underweight, normal weight, overweight and obesity. BMI is a simple, inexpensive measure of body fat. Therefore BMI is easy, everyone can find it by measure their height and weight by using proper equipment. Then calculate with reasonable accuracy (Guh *et al*., 2009). Moreover, level of fat in human body and future health risks have relationship with BMI levels. BMI have a standard weight status categories that are be true for each person after 20 years. The standard weight status categories are same for all ages and for both genders.

When body mass index (BMI) of ≥ 30 kg/m^2 and higher, it is define an obesity (Table 1). Furthermore, if body mass index (BMI) between 25 and 30 kg/m^2, the person is overweight (Derby *et al*., 2006; Standard Health Care, 2020). It's clear that, long-term positive energy balance leads to overweight and obesity (Seidell and Flegal, 1997).

Table 1. Body Mass Index (BMI) classification from World Health Organization (WHO)

Classification	BMI
Underweight	< 18.5
Normal weight	18.5_ 24.9
Overweight	25_ 29.9
Obese	≥ 30

Furthermore, the waist is positively associated with disease, the better predictor of morbidity is waist/height ratio (Gordeladze, 2017). It can be seen normal waist measurements for both gender in Table (2).

Table 2. Classification of waist circumference (Han *et al*., 2011; Gordeladze, 2017).

Gender	Normal waist measurement
Male	≥ 94 _ 101.9 cm
Female	≥ 80 _ 87.9 cm

The aim of this research by review was to address the risks factors and health problems that are associated with overweight and obesity generally. Then, mentioned some main points to protect individuals from overweight and obesity and management weight to reduce health risks.

1. Risks factors of overweight and obesity

Depend on review of many researches, there are a lot of risk factors for overweight and obesity. A few of it can be changed, and others cannot be changed (Han and Lean, 2016). As mentioned briefly in the following:

1) Unhealthy lifestyle habits: For example; dietary intake, smoking and alcohol consumption (Gordeladze, 2017).
2) Environment (Mokdad *et al*., 2003).
3) Family history and genetics (Australian Institute of Health and Wefare (2017).
4) Age: overweight increases with age, at least up till age 50-60 years in men and women (Farooqi and O'Rahilly, 2006).
5) Gender: women have generally higher prevalence of obesity compared to men especially when older than 50 years of age (Farooqi and O'Rahilly, 2006).
6) Race and ethnicity (De and Silvestris, 2013).
7) Educational level.
8) Physical activity: Generally, those who remain inactive and don't have physically active are usually more obese than those who are physically active (Alfridi and Khattak, 2003).

2. Health risks of being overweight or obese

There are so many disease that have relationship with overweight and obesity (Controlled Clinical Trials, 2003; Beenackers, 2013). It will be mentioned ten health risks or problems which are common in our society:

a. Cancer

Several studies show that obesity and cancer have significant association. Overweight and obesity from linked cancers was slightly higher in women than in men (Felson *et al*., 1992). Obesity leads to many types of Cancer such as (Liver, stomach, kidney, colorectal, prostate, ovarian, uterine/endometrial, esophageal, pancreatic, breast and gallbladder) which has a relationship with high BMI (National Institute of Diabetes and Digestive and Kidney Disease Health Information Center, 2018). So, the number of death from cancer for people who has BMI equal to (35) and more, is higher than people who have BMI smaller than (25) for all types of cancer (Must et al., 1999; Jitnarin *et al.*, 2010). Thus, obesity has a close relationship with breast cancer (Bonan and DeCicco-Skinner, 2018).

b. Diabetes

With increasing weight, the risk of diabetes increases especially type 2 diabetes (National Heart, Lung, and Blood Institute in cooperation with The National Institute of Diabetes and Digestive and Kidney Diseases, 1998; Mokdad *et al*., 2003; Bluher, 2019). During a year follow-up, the major risk factor for diabetes was body weight (Flechtner-Mors *et al*., 2015). About 8 out of 10 people with type 2 diabetes are overweight or obesity (Pi-Sunyer, 2018). Obese person who are 25- 64 years old least four times more likely to have been got diabetes than those who are normal weight (National Institute of Diabetes and Digestive and Kidney Disease Health Information Center, 2018). Could be reduce the risk of diabetes by losing weight which is shown by several studies.

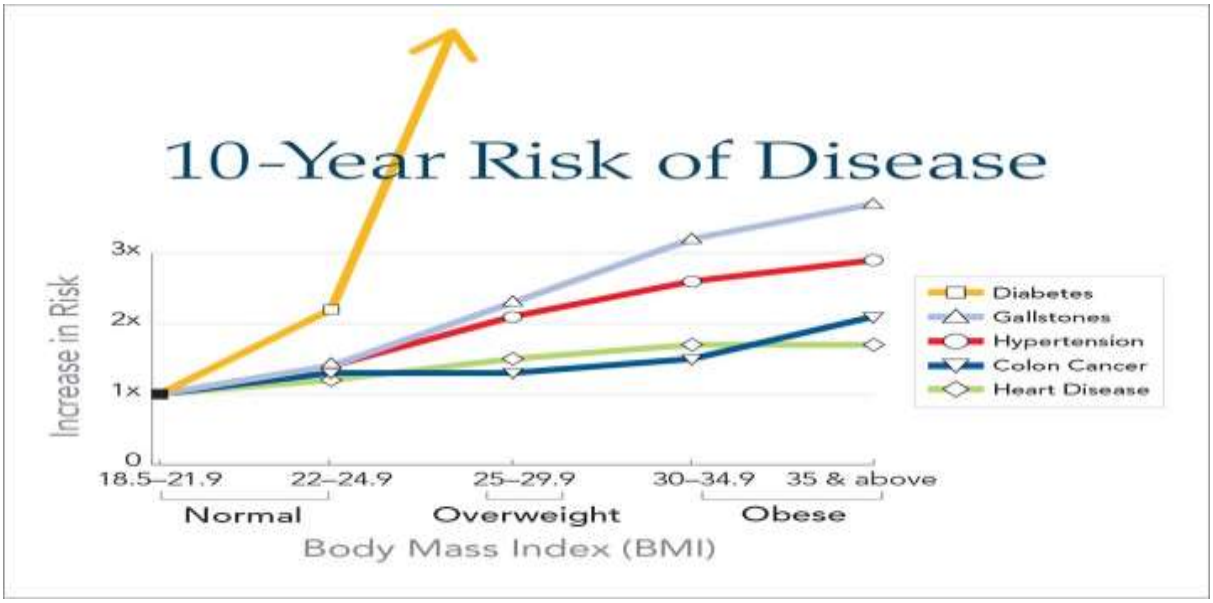

Figure 2. Increasing risks of many disease with increasing BMI (Dow, 2018).

c. High blood pressure / hypertension

Increasing in weight is strong associated with an increased hypertension (Farooqi and O'Rahilly, 2006). Co-morbid risks factors for increase cardiovascular disease are obesity and hypertension. Obesity have association with development of hypertension (Farooqi and O'Rahilly, 2006). According to Han and Lean (2016), hypertension could be improved by weight loss.

d. Heart disease and stork

Most of new research shows that the risk of heart disease and stroke increase as BMI rises (Must *et al*., 1999). Heart disease contains cardiovascular disease (CVD), heart attack and heart failure (National Heart, and Blood Institute, 2011). There were found out heart problem in obese people (BMI $\geq$ 30 kg/m^2) more than non-obese (Guh *et al*., 2009). Moreover, overweight or obese person in high risk with cardiovascular disease (Must *et al*., 1999; National Heart, and Blood Institute, 2011; Hugo *et al*., 2008).

e. Dyslipidemia

Dyslipidemia is abnormal amount of lipids in the blood. Higher body weight and higher levels of total serum cholesterol are related together (Witters and Liu, 2017). There are some evidence that increasing cholesterol levels have association with obesity. Hypercholesterolemia (very high levels of cholesterol in the blood) increases with increasing BMI especially in women (Witters and Liu, 2017). A person who has predominant abdominal obesity, total cholesterol levels are usually high (Lementowski and Zelicof, 2008).

f. Gallbladder Disease

If someone overweight or obesity, his chance for getting gallbladder diseases is increased (Lementowski and Zelicof, 2008). Gallbladder diseases consist of gallstones and cholecystitis. When, human bile contains too much cholesterol, Gallstones might be happened National Heart, Lung, and Blood Institute in cooperation with (The National Institute of Diabetes and Digestive and Kidney Diseases, 1998).

g. Fatty Liver disease

According to Pi-Sunyer (2018), studies have identified obesity has associated with fatty liver disease. One of the effective treatment for fatty liver disease is increaseing physical activity. There is not enough evidence yet, losing in weight might be helpful for reducing the risk of the disease especially in obese people.

h. Osteoarthritis

Obesity person is in high risk to getting osteoarthritis therefore their joints and cartilage under extra pressure (Dow , 2018). So, one of the major factor for osteoarthritis is obesity (Witters and Liu, 2017). However, osteoarthritis increased steeply with age. More than % 45 osteoarthritis diseases in overweight and obese people (Lementowski and Zelicof, 2008). When weight of body is increased, pain of joints increased because they have significantly association which is leads to osteoarthritis (Must *et al*., 1999; Lementowski and Zelicof, 2008). Maintain a healthy weight and lose of weight leads to decrease Osteoarthritis (Akil and Ahmad, 2011).

3. Sleep apnea

During sleeping, there is a common disorder called sleep apnea. In that situation human cannot breathe regularly. Also, for development the sleep apnea and problem respiratory system increasing on weight or are main risk factors (National Heart, Lung, and Blood Institute in cooperation with The National Institute of Diabetes and Digestive and Kidney Diseases, 1998; Must *et al*., 1999). Most of people who have a BMI > 30 have a sleep apnea. In addition, loud snoring is typical features of sleep apnea.

4. Pregnancy problems

During pregnancy, obesity raise the risk of health problems (National Heart, Lung, and Blood Institute in cooperation with The National Institute of Diabetes and Digestive and Kidney Diseases, 1998). Pregnant women who are an obese may have a greater chance of having premature birth and infant with low weight (Calle *et al*., 2003; Crujeiras *et al*., 2013). When obesity during pregnancy happened, morbidity for both the mother and the child is increased. However, obesity also has a related to complexity during labor and delivery, leading to a higher rate of caesarean section (McDonald *et al*., 2010). In overweight and obese women the risk of caesarean section is higher than normal weight women by more than 50% (Crujeiras *et al*., 2013). There are many problems in women that are linked with obesity such as complications of pregnancy, menstrual irregularities and hirsutism (Brown, 2020). Therefore, obese women have difficulties to get pregnancy compare to normal weight women. For that reason, get advice the obese women to reduction weight pre-pregnancy (Zhang et al., 2007; Stubert et al., 2018).

5. Prevention of overweight and obesity

To maintain a healthy weight, normal weight, lose weight or management weight, needs energy intake to be less than the energy expenditure.

- Eating healthy food: collect information about most type of foods and nutrients to knowing healthy eating type. To maintain a healthy weight eat the right amount of calories is important. Someone necessity to lose weight should be reduce calories intake (Poobalan *et al*., 2008).
- It should be far from snacks than are high in fat and carbohydrate, eating fresh fruit and vegetable instead of it (Ismail, 2018).
- Can be prevent cancer by eating fruit and vegetable at least five portion or 400g daily (American Heart Association, 2015).

- Most of beverage is high in sugar, for example soft, sports and drinks, fruit juice drinks. Because of encourage children to drink water rather than the beverages (WHO, 2003; 2015).
- Using brown rice and whole wheat bread instead of white bread and highly processed foods. Because of it is rich in carbohydrate and saturated fat (WHO, 2003; American Heart Association, 2015).
- Physical activity: There are many health benefits and it can be prevented chronic illnesses (Goran *et al*., 1999). Each week, the recommended amount of physical activity needed. Important factor to determining person can maintain a healthy body weight, lose excess body weight and maintain successful weight loss is Physical activity (Goran *et al*., 1999; Health Promotion and Non-communicable Diseases Section Public Health, 2015; Hanlon *et al*., 2019).
- Sleep: Everyone should be have a healthy sleep because obesity positively related with lack of sleep.
- Declined sleep duration especially for children and adolescents leads to development overweight and obesity (Ismail, 2018; Hanlon *et al*., 2019).
- Junk foods should be avoided that are high in calories in a small amount of food. For example, fast food and dessert (American Heart Association, 2015; Ismail, 2018).
- Exercise: activity about 45–60 minutes/ five days in week (Ding and Gebel, 2012).

6. Discussion

Based on this research, both overweight and obesity were significantly associated with a several disease as it mentioned above. Possible treatments for overweight and obesity are different for each person. However, there are some treatments such as choose healthy lifestyle, select a program to lose weight, medical drugs and surgery. Then, the main point is, that it could be said, weight loss can be decreased most of disease, improve overall health and decrease rate of overall mortality (Wareham *et al*., 2005; Witters and Liu, 2017). For obese people, monitoring calorie intake and increase physical activity will be decline most of illness such as type 2 diabetes and cardiovascular disease (Ding and Gebel, 2012).

Conclusions and Recommendations:

Eventually, overweight and obesity is associated with an increased several major risks factors and health problems. Over next ten years, rate of overweight and obese people will be increase double in the whole world.

Depend on this review and many studies that is done in the past few years, obesity prevention is urgently needed. Especially for a group of people who are at high risk for weight gain and obesity. For Instance, people who have a genetic predisposition. The group of people can management of their weight by changing life style. It is including eating healthy food, stop smoking and increase physical activity. Additionally, an effort to keep healthy weight in children and adolescents is very necessary.

Lack of physical activity encourage the excess weight and to being overweight and obesity. Consequently, physical activity is related to improve overall health and reduce the obesity development.

Promoting the physical activity should become a part of live for everyone. For that purpose, should not be focused on going to sports clubs because of every one can doing sport by own self such as, such as walking and cycling.

As another important point, government should have active role in reduce obesity by improvement healthcare and promote facility to increase the physical activity.

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