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Obesity: Risk Factor for Public Chronic Health Problems

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Abstract

Chronic disease has been identified as the greatest driver of health care expenditures in the United States. Chronic diseases cause pain and suffering to patients and their family members and have been financially draining the healthcare system such that they have become public chronic health problems. Indeed, about 75% of total healthcare expenditure in the country goes to chronic diseases. Future scenarios even look worse. For instance, it is projected that the United States expenditure on diabetes alone will increase from $113 billion in 2009 to $336 billion annually by 2034 in real spending. The same is true for cardiovascular diseases, for which direct medical costs of cardiovascular disease will triple, from $273 billion to $818 billion. Interestingly, a commonality shared among chronic diseases such as diabetes, cardiovascular disease and certain cancers is that they are closely linked with obesity. Extant literature is replete with studies linking obesity to other chronic problems. Presented in this paper is a discussion about obesity as risk factor for several public chronic health problems.

Keywords: Obesity, chronic health problems, Public health problems, chronic diseases

1 Obesity: Risk Factor for Public Chronic Health Problem

Over the past few decades, there has been an unprecedented increase in the prevalence of chronic conditions in the United States, including, cardiovascular disease, cancer, diabetes, asthma, and depression [1]. Each of these diseases leaves a high cost for the individual and the healthcare system because they can impact quality of lives aside from being financial burdens. Chronic conditions would take a lifetime of medication, consultations, and other types of care. Worse, these conditions are progressive and would eventually worsen. It is also alarming that chronic conditions do not only affect the adults' population but also that of children. Children at the very least should be healthy because they still have a whole future ahead of them. Chronic diseases could hamper the fulfillment of their potentials.

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Albeit the United States has seen overall improvement in age-adjusted mortality rates as well as life expectancy, it is markedly lagging behind other advanced countries due to persistent public chronic health problems and widening health disparities [1]. This means that programs from federal, local and community levels are not likely addressing the main cause of these chronic conditions. Diseases can be managed but it is better to prevent them by determining their ultimate cause. Thus, it is of tantamount importance that the main driver for these chronic conditions should be addressed.

Meanwhile, it must be emphasized that chronic diseases constitute the largest driver of health care spending in the United States. Aside from the pain and suffering that they cause among patients and family members, chronic diseases in the United States have been financially draining the healthcare system such that they have become public chronic health problems. To note, roughly 75% of total healthcare expenditure in the country goes to chronic diseases, "with Medicare spending, on average, $60,000 over a two- year period on beneficiaries with severe chronic lung disease, diabetes, and heart disease" [1].

If these figures are stunning as they are, future prospects about these chronic conditions are even worse. For instance, the lifetime risk of type 2 diabetes, a largely preventable ailment, now stands as one out of three of the American population [1]. The healthcare system's annual spending on diabetes alone is projected to "increase from $113 billion in 2009 to $336 billion by 2034 in real (2007 U.S.$) spending [1]. Just as importantly, from 2010 to 2030, "real ($2008) total direct medical costs of cardiovascular disease are projected to triple, from $273 billion to $818 billion" [1]. While all these public spending goes to chronic conditions that are preventable, another concern here is that other urgent public health endeavors such as research are compromised. Other welfare service are also set aside or their budgets lowered because healthcare spending is becoming higher and higher.

Interestingly, a commonality shared by these public chronic health problems is that they are tied to one risk factor (among others): obesity [2]. Researchers have found that when a person is obese, he or she will also be prone to developing health complications. These health complications can be chronic in nature. In line with this, the paper presents a discussion about obesity and how it is considered as a risk factor for several public chronic health problems.

1.1 Overview of Obesity

Obesity is currently one of the most pressing public health problems in the United States. This condition is caused by consuming more calories than the body can burn [3]. To note, the human body burns calories mostly through physical activity. However, some patients afflicted with obesity have become too heavy or sick to undertake these activities so that the calories they consume are deposited to form even fatter. Alternatively, people who have normal weight will forego of physical activities, and they will eventually accumulate fats in their bodies. Adults may become too busy with other concerns in life that exercising becomes a non-priority. For children, the lack of physical activity can be attributed to exchanging physical play with computer or electronic games.

According to studies, most obese people have flawed signaling systems in their brain so that they do not feel full even after they had consumed too much food [2 & 3]. This is the reason why obese people keep on eating even if they have already consumed a lot of food during mealtimes. It is not about not having enough food, but about not getting the right signal that the body is already full.

A person who has a body mass index (BMI) of more than 30kg/m is considered as obese [2 & 3]. In the United States, approximately 35.7% of all adults are obese, 35.5% of whom are male and 35.8% of females [4]. This is a very high percentage because it could translate to one-third of the population being obese. As such, one-third of the population may be suffering or are in danger of chronic diseases.

Healthcare professionals have long been concerned about obesity because this condition remarkably burdens that healthcare system since it is a risk factor for chronic diseases. Research shows that the present American generation is at risk of having a shorter life expectancy compared to their parents due to the reality that obesity has reached epidemic levels [2]. Studies also show that obesity is a risk factor for chronic problems such as high blood pressure, heart disease, type 2 diabetes, stroke, and some forms of cancer [2]. The following subsections will discuss these associations between obesity and public chronic health problems.

2 Literature Review

Volumes of studies attest that obese persons are at an increased risk of developing several chronic diseases that can further lead to morbidity and mortality [5]. As is commonly known, morbidity has the more pronounced impact. Some of these chronic health diseases include type 2 diabetes, cardiovascular disease (CVD) and cardiovascular risk factors, and certain cancers, among others.

2.1 Obesity and Type 2 Diabetes

Type 2 diabetes is among the most prevalent chronic diseases in the United States, affecting about 8% of the population [6]. This includes both adults and children. Those with Type 2 diabetes are at heightened risk for numerous ailments. For instance, people with Type 2 diabetes "are up to four times more likely to develop cardiovascular disease than people without diabetes" [6]. Moreover, Type 2 diabetes has been related with low-grade systemic inflammation, which in turn, appears to play a role in "pathogenesis of cardiovascular disease, and thus may be responsible for the increased cardiovascular risk among diabetics" [6]. The complex interplay between genetic and environmental factors results in Type 2 diabetes. However, it is mostly environmental factors such as lifestyle and diet that lead people to gain weight and become ill over time. Obesity is a major risk factor for type 2 diabetes [7]. For some time now, longitudinal studies have been showing that obesity-associated characteristics, including BMI and waist circumference, are linked with the risk of type 2 diabetes [7]. Hence, the rapid increase in obesity prevalence has been identified as a determinant of a rapid increase in prevalence of Type 2 diabetes over the past 30 years [7]. However, it is important to note that not all individuals with Type 2 diabetes are obese, and vice versa.

Nevertheless, as Li, et al., (2011) explain, the "genetic architecture of type 2 diabetes in obese individuals is different from that in non-obese individuals" (p. 776). In a study conducted by [7], they found out that genetic predisposition to obesity leads to heightened risk of developing Type 2 diabetes, "which is completely mediated by its obesity-predisposing effect" (p. 776). Hence, for people who are genetically predisposed to obesity, it is crucial that they not only have regular screening but also to be aware of

lifestyle factors that could lead to obesity, including, lack of physical activity and a diet high in saturated fat. In short, people who have history of diabetes in their family should be careful about their diet, engage in physical exercise and avoid becoming overweight or obese as these could trigger the malfunction of the body's system, disabling it from producing and using sugar effectively.

Meanwhile, reference [8] reported that obesity is associated with low grade chronic inflammation which seems to emanate from the adipose tissue. The macrophages in the adipose tissue increase in number as the person's weight and body weigh index increases. Over time, the macrophages in the adipose tissue can lead to high levels of inflammatory condition then to systemic inflammation, and eventually to insulin resistance.

2.2 Obesity and CVD

Among obese people, inflammation, which is the typical and common bodily response to tissue injury, becomes a chronic condition [9]. As already mentioned, one reason for this is the increased presence of hormones in the system that cause inflammation. This is one of the factors why diabetic individuals can also develop a host of complications like cardiovascular disease or renal failure. Notably, stressed adipocytes release inflammatory messengers and after a given period of time, inflammatory cells eventually cause vascular damage that could result in atherosclerotic phenomena [9]. Over time, these aberrations may lead to severe problems, including, ischemic heart disease, renal insufficiency, and blindness [9]. Research also shows that about 50% of obese people eventually develop arterial hypertension at some point [9]. Without correcting the problem through exercise and proper diet, people who are obese can suffer from heart attack or blocked arteries that can lead to mortality.

2.3 Obesity and Cancer

All throughout the world, obesity has been identified as a risk factor for certain cancers. Specifically, obesity has been established as a risk factor, second only to smoking, for cancer [10]. In the United States, obesity has been especially associated with colorectal and breast cancer. Among American women aged 20 years old and above, about 34 % are obese [11]. Obesity may be subcategorized as "grade 1(BMI 30 to<35 kg/m2), grade 2 (BMI 35 to<40 kg/m2), and grade 3 (BMI 40 kg/m2 or higher)" (Jain, et al., 2013, p. 258). Once the individual has 20% more body fat than normal weight, this is already considered obesity. The higher the excess fat there is in the body, the more chances the person will acquire different types of complications.

According to studies, grade 3 obesity has "a 2.12-fold higher breast cancer mortality rate based upon data from an observational population-based study" that had "nearly 500,000 women observed over a 16 year period" [11]. This study is longitudinal in nature with a large sample population, which makes the results generalizable. Aside from this, for patients with breast cancer, obesity upon diagnosis has been linked to increased risk of breast cancer recurrence and death [11]. Even if a woman can have a remission for a few years, the cancer cells can likely be back if the illness is associated with obesity. Moreover, evidence points to increased "risk of estrogen-receptor (ER)-positive breast cancer" for obese postmenopausal women, while "in premenopausal women the risk of triple negative breast cancer is increased" (Jain, et al., 2013, p. 258).

Meanwhile, colon cancer is responsible for 130,000 new cancer cases in the United States as well as 50,000 deaths each year [11]. It is predicted that half the population in the Western world "will develop at least one colorectal tumor by the age of 70 years[11]. According to clinical researchers, metabolic changes related to obesity, specifically, abdominal obesity and "changes in adipocyte function, contribute to the increased risk of colon cancer" [11]. Moreover, as reference [11] explain, inflammation and insulin resistance caused by obesity are the molecular mediators of the relationship between colon cancer and obesity. Thus, people who have diabetes and are obese need to be doubly careful because this can lead to further problems in the digestive system and overall health of the body.

3 Discussion

As seen in this paper, the harm that obesity causes can no longer be denied. Existing literature is replete with studies positively linking obesity with chronic diseases, particularly that of diabetes, cardiovascular disease, and certain cancers. Due to these chronic diseases, many people suffer as their quality of life reduces.

A review of literature indicates that there are numerous interventions proposed for obesity. However, they seem to be fragmented. There are interventions that recommend the community approach, there are interventions that depend on policy making while there are also suggestions that seek to address obesity at the individual level such as through behavioral change approaches. It also appears as if the only proven way of reducing the risks of obesity is through physical activity and proper diet. It is also very important that the individual concerned is committed to reducing weight; otherwise, no effort from anywhere else can address this problem. This statement is made because in spite of the number of interventions being implemented, obesity continues to rise. Clearly, there is a flaw or weakness in terms of these interventions.

It has been noted that public health initiatives may generate strong opposition considering that they impose financial penalties or regulatory restrictions on those who are considered as accountable for a costly health problem such as obesity [1]. Perhaps, the first thing that public health officials need to take at this point is to make sure that there is a balance between the legal powers and states ' duties and the sincere desire to see that the populace is healthy and living good quality of life. This means that there needs to be more concerted collaboration between relevant stakeholders so that clinical interventions for obesity are supported by effective and enforceable policies.

4 Conclusion

It is evident that obesity has reached epidemic proportions in the United States because one-third of the population has more fat in their bodies than what is considered normal. There are many reasons why people become obese, such as genetics and environmental factors. However, it is lifestyle and diet that promote excess weight. When a person starts to gain weight, the tendency is to allow the weight build-up to continue until such time that the individual becomes comfortable with having excess fat in the body. Without knowing it, this can lead to a host of many health problems. Currently, obesity is

considered as a risk factor for other public chronic health problems such as Types 2 diabetes, colorectal and breast cancer as well as CVD. Interventions being implemented right now do not seem to be very effective in light of continued increase in prevalence of obesity. It appears as if one of the weaknesses of obesity interventions in the United States is that they are fragmented, indicating an unfortunate lack of collaboration among stakeholders. Therefore, it must be emphasized that for obesity to be finally addressed, there should be deeper collaboration among the fields of medicine, science, policymaking and community so that an intervention is supported by policies that are not only effective and measureable but also enforceable.

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