OBESITY AS A PUBLIC HEALTH PROBLEM

Introduction

According to reports: In the ancient times when humans were predominantly hunters and gatherers, there was no obesity problem. However, over time, the world has seen remarkable improvements in agriculture, food storage and processing, marketing, and rural, and urban development with a rise in sedentary lifestyles which has created an "obesogenic- or obese-promoting society. (Cakmur, 2017, Basset and Parl, 2004, pg 147).

Obesity is defined as the result of excessive and abnormal fat accumulation in the body (Garaulet, 2010). It occurs when the body consumes more calories than it expends through overeating and underexercising. An individual is said to be obese when the bodyweight exceeds by 20% and above what is considered normal according to standard age, height, and weight tables (Wolin and Petrelli, 2009). The World Health Organization (WHO, 2021) defines obesity for adults as Body Mass Index (BMI) ≥ 30 kg/m2; for children under 5 years as "weight-for-height greater than 3 standard deviations above the WHO Child Growth Standards median"; for Children between 5–19 years as " BMI-for-age greater than 2 standard deviations above the WHO Growth Reference median". Factors, such as inactivity, unhealthy diet, eating habits, family lifestyle, metabolism, and genetics play important roles in the development of obesity (Xu and Xue, 2016).

Obesity has become a major public health problem affecting every age group, from pediatric to geriatric, and also increasing at an alarming rate globally (Carkmur, 2017). Various countries, from America to Europe, and from Asia to Africa, have reported that obesity is a major health issue (Xu and Xue, 2016). The obesity epidemic was first reported in the United States, in the 1970s and then, It spread to other countries with the advancement of western civilization (Rodgers et al., 2018). Over the past twenty years, the prevalence of obesity has doubled in adults and children and tripled in adolescents (Basset and Perl, 2004). 60-80% of adults and 20-30% of children in most Western countries are now overweight or obese, which is unprecedented in human history (Ayton, 2019)

Obesity is not just a cosmetic problem: it is associated with physical and psychiatric comorbidities (Carkmur, 2017). Obese individuals incur an elevated risk from all causes of mortality Cakmur, 2017). It has been reported that obesity is the fifth leading risk factor for global deaths (Haslan, 2005). The mortality rate from all causes in the obese population is at least 20% higher, compared to the normal-weighted society (Kobyliak, 2016).

Also, it causes economic losses to countries affected through the heavy burden of treatment costs and reductions in effective labor power to financial losses all over the world (Cakmur, 2017). Against this background, it is important to develop specific preventive measures and treatment options. Therefore, obesity should be considered a disease and a public health emergency.

The sad truth is that when it comes to helping individuals lose weight, public health professionals, health care providers, and the diet industry have all been woefully unsuccessful Long-term success stories are few. Stories of weight regained abound. (Basset and Perl, 2004). This is because the

approach used has been hugely an individual-based intervention. The failure of the traditional obesity control measures has stressed the importance of a new non-stigmatizing public policy approach, shifting away from the traditional focus on individual behavior change towards strategies dealing with environmental change- a social and cultural-based intervention (Tiwari and Balasundaram, 2022)

The other big challenge related to obesity is weight bias and discrimination. In public settings such as work environments, healthcare facilities, and educational setups, obese individuals face discrimination (Tiwari and Balasundaram, 2022) Also, there are ethical dilemmas in the public health approaches to preventing and controlling obesity. This paper seeks to justify obesity as a public health problem, examine its relationship with social and health inequalities, examine the ethical problems associated with obesity management and explore different interventions to prevent and manage obesity

The Public Health Impact of Obesity

Prevalence and global burden

According to a recent estimate by WHO, the global prevalence of obesity tripled between 1975 and 2016 (WHO, 2021). In 2016, WHO reported that over 650 million adults were obese which makes up 13% of the world's adult population- this figure constituted 11% of men and 15% of women. Globally more people are obese than underweight – this occurs in every region except parts of sub-Saharan Africa and Asia. In 2019, WHO reported that an estimated 38.2 million children under the age of 5 years were overweight or obese (WHO, 2019). It is predicted that by 2025 obesity will affect a fifth of the world's adult population: 18% of men and more than 21% of women totaling over 1 billion people (Lobstein and Cooper, 2020). Also, it is estimated by 2025, more than 400 million adults worldwide (6% of men and 9% of women) will be living with severe obesity (body mass index 35 kg/m2 or more) [10], a common threshold for considering surgical intervention (World Obesity Federation, 2020). Years ago, obesity was seen only in high-income countries, now its prevalence is on the rise in low- and middle-income countries, particularly in an urban setting (WHO, 2021). In Africa, the number of overweight children under 5 has increased by nearly 24% percent since 2000 while almost half of the children under 5 who were overweight or obese in 2019 lived in Asia (WHO, 2021)

The World Health Organization (WHO) reported that children in low- and middle-income countries are more at risk of obesity due to their exposure to high-calorie, high salt, micronutrient-poor foods, which tend to be lower in cost and also lower in nutrient quality (WHO, 2014). These diary patterns, in conjunction with lower levels of physical activity, res result in a sharp increase in childhood obesity. According to these statistics, obesity is a public health issue that affects an increasingly significant part of the different patient populations including adults and children, the rich and the poor, inhabitants of developed and developing countries, and those living in rural and urban areas.

Mortality and Morbidity Impact of Obesity

Studies have confirmed the association of obesity with several disorders including " type 2 diabetes mellitus, high blood pressure, cardiovascular diseases, stroke, kidney disease, cancer, breathing problems, sleep apnea, osteoarthritis, mental problems example anxiety and depression), and impaired health in general" (Cakmur, 2017 pg 12).

Obesity not only causes serious illness but also substantially decreases the average public life expectancy. Obesity in adulthood is a strong predictor of early death accounting for over 5% of deaths worldwide. (Tiwari and Balasundaram, 2022). Framingham Heart Study- a prospective cohort study- revealed that adults who were obese at 40 years lost 6 to 7 years of expected life (Peeters et al.,2003).

Furthermore, obesity reduces both the physical and the psychosocial aspects of the quality of life of patients- most significantly among morbidly obese individuals. The self-perceived Health-related quality of life (HRQL) among obese individuals worsens with increasing BMI. The effect of obesity on HRQL is assessed most frequently by SF-36 (Short-Form Health Survey), comprising 36 questions covering eight domains including physical functioning, physical role limitations due to physical health problems, social functioning, bodily pain, general mental well being, emotional role limitations, energy, and general health perceptions. The risk of suffering from any chronic medical condition is almost doubled in morbid obesity compared to overweight individuals (Doll, 2011). Obesity causes a substantial psychological burden exacerbated by the public's marked preoccupation with thinness. Sullivan et al., 1993 reported more significant psychosocial consequences in obese women when compared to obese men.

Childhood obesity is known to be a serious public health problem as there is a high chance that obese children grow to become obese adults. This early obesity in children has a significant impact on both physical and psychological health in their future as adult obesity has also been linked to cardiovascular disease risk during adulthood (Cakmur, 2017). This is compounded by the risk related to chronic hyperglycemia exposure in youth with type 2 diabetes mellitus (Bacha, 2016) Obese children have a higher risk of disability and premature death compared to normal-weight children (Reilly and Kelly, 2010) Also, studies have identified that overfed children become overeating adults (Daniels et al, 2005).

Obesity before and during pregnancy has been associated with pregnancy-related complications with short- and long-term adverse effects in the offspring, including increased susceptibility to obesity and metabolic diseases. (WHO, 2021). Obesity has a debilitating effect on elderly people. It is well known that the main complications of obesity in elderly people is metabolic syndrome (diabetes, hypertension, and cardiovascular disease) (Mathus- Vigen et al., 2012) It is therefore not surprising that obesity increases the risk of heart failure in the elderly. Other serious consequences of obesity in elderly people are several cancer types, Alzheimer's disease, pulmonary dysfunction, osteoarthritis, obstructive sleep apnea syndrome, and functional inactivity (Hauser, 2013). According to studies, obesity with its comorbidities results increases the chances of death in the elderly.

The economic impact of Obesity

In addition to the negative effect on population health, obesity also has economic implications. According to McKinsey Global Institute (MGI) research report, the economic impact of obesity is about $2 trillion a year or 2.8% of world Gross domestic product (GDP)– roughly equivalent to the economic damage caused by smoking or armed violence, war, and terrorism (Swinburn, 2015).

People who are overweight require healthcare services more often and for more complicated issues. This raises health expenditure by 209 USD per capita across the Organisation for Economic Co-operation and Development (OECD) countries. On average, OECD countries will spend 8.4% of their entire healthcare budget on treating the consequences of being overweight over the next thirty years (OECD, 2019).

The direct cost of healthcare for treating obesity-attributable diseases is the most evident, it is attributed to the amount spent on diagnosing and treating obesity and obesity-related chronic comorbid conditions such as cardiovascular disease and type 2 diabetes. however, there are indirect costs resulting from obesity as well. These indirect costs include absenteeism (missing days of work), presenteeism (reduced productivity while at work), early retirement, the cost of premature mortality, and more. Indirect costs are attributed to the lost wages secondary to illness and premature death, elevated costs paid for disability and insurance claims, and decreased productivity at work (RTI, 2022).

In the united states, Obesity is estimated to account for more than 20% of all annual health care expenditures. It was reported that medical costs for obesity accounted for 40% of the healthcare budget in 2006 (Cakmur, 2017). The medical care costs of obesity in the United States were estimated to be $147 billion in 2008. The annual nationwide productive costs of obesity-related absenteeism range between $3.38 billion ($79 per obese individual) and$6.38 billion ($132 per obese individual). Obesity affects 34% of children in the United States. For the pediatric healthcare delivery system, expenses were $179 per year higher in obese children versus children with a normal body mass index (BMI) (Cakmur, 2015). it was reported that the direct medical cost of overweight and obesity combined is approximately 5.0–10% of the United States healthcare spending (Tsa, 2011).

The actual cost of obesity and related morbidity in developing countries have not been reported in any detail to date, but it is clear that the prevalence of childhood and adulthood obesity is increasing in low-income countries, which leads to a heavy treatment burden on their domestic budget (WHO, 2014).

The economic consequences of obesity together with its increasing prevalence and negative impact on physical and mental health obesity more than just a risk factor in clinical settings but an important threat to public health to which attention be directed.

Obesity and the Sustainable Development Goals

Surprisingly, despite its global prevalence, obesity is not overtly listed in the WHO Sustainable Development goals. However, it sits almost everywhere in the SDGs. This implies that a multisectoral approach is needed to solve the problem of obesity (Johanna et al.2020). "The SDGs with the clearest links to obesity are: SDG3 on health, which includes a target on non-communicable diseases (NCDs): Target 3.4 By 2030, reduce by one-third premature mortality from NCDs through prevention and treatment and promote mental health and well-being. SDG2 on food, which calls for an end to 'all forms of malnutrition (although, as noted above, the primary focus is still on undernutrition, not overnutrition). Other goals that could (and should) be viewed through an obesity lens include SDGs 10 and 5 on reducing inequalities and gender inequity (highly relevant to issues of stigma and discrimination against people living with obesity), SDG 11 on sustainable urbanization, SDG4 on education and several goals of relevance to healthy and sustainable diets (among them SDG 6 on access to safe water, SDG 12 on sustainable consumption and production and SDG 15 on land use). Additionally, Goals related to income, poverty, and economic growth (SDGs 1 and 8) and planetary health (SDGs 1i3 and 14) have clear implications for how we prevent, treat, and manage obesity under the current economic system. Finally, the cross-sectoral action necessary for all of the above links to SDG 17" (Johanna et al., 2020, pg 121).

Relationship between Obesity and Socioeconomic Determinants of Health

Socioeconomic determinants of health (SDH) are factors that the health status of individuals and communities. These factors include employment status, income level, educational status, environment, and access to health care (Pamela et al., 2015). Several studies have confirmed the association between socioeconomic status (SES) and obesity in individuals and communities. However, the pattern of association varies in different socioeconomic groups and different communities. According to studies, lower socioeconomic status (SES) increases the risk of obesity in adults (Ball et al.,2003). This is because individuals from lower SES tend to live on diets rich that are energy-dense- which are usually low in cost. Also, they participate less in sports, and physical activity and have lower awareness of weight control. Lower SES has also been linked to lower control over one's life and this does not the adoption of healthy lifestyles for a given individual and their children (Stamatakis et al., 2005).

Studies have investigated the effect of education and income, as indicators for socioeconomic status (SES), on obesity in both developed and developing countries. From these studies, there are findings that low education and income can put individuals at the risk of obesity in developed countries (McLaren, 2007, Dinsa et al., 2012) For example, findings of a study in Germany showed that less educated and low-income people tended to be more obese than their respective counterparts (Kuntz and Lambert, 2010). Several studies have confirmed the distribution of obesity along the socioeconomic gradient (Kuntz and Lambert 2010).

In a study examining how economic development, socio-economic status, and obesity are related in 67 countries Fred et al., (2012), found an increase in the obesity rate as the nation's economies

improved. They also found a change in the socioeconomic status with regards to obesity. This means that in lower-income countries people with higher SES are more likely to be obese compared to those with lower SES. On the other hand, in high-income countries, those with higher SES were less likely to be obese compared to those with lower SES. The possible explanation for this observation may be that individuals with higher SES in lower-income countries consume high-calorie food and avoid physically tough tasks- even hiring people to do everything But in higher-income countries, individuals with higher SES may respond with healthy eating and regular exercise. According to the authors, this implies that " while economic development improves health problems of malnutrition are replaced by problems of overconsumption that differentially affect SES groups".

These studies show that factors that increase the risk of being obese affect SES groups differently and may cause inequalities in obesity between socioeconomic groups that worsen health and shorten longevity for those who are most disadvantaged

Relationship between Obesity and Social justice and Health Inequalities

An ideology that is worrisome and that has impeded the effective management of obesity has been the framing of the problem of obesity as one of overeating, gluttony, and laziness. This idea projects obesity has a problem caused by the personal failings of affected individuals. Mostly, this idea is directed at the less affluent. This ideology promotes weight bias and stigmatization of the obese. Weight bias has been recognized as a social justice issue and a priority for public health (Nutter et al. 2016).

According to reports, this bias is common in our society today (Nutter et al., 2016). Research has shown that weight bias is the fourth most commonly reported form of discrimination with its reporting rate increasing by 66% between 1995 and 2006 (Andreyeva et al, 2008).

Weight bias constitutes stereotyping people with large bodies as being lazy, weak, gluttons, and unattractive physically and sexually (Rebecca and Chelsea, 2010). This bias is reported to permeate every sector and forms part of the modern culture. Research has reported weight bias in the healthcare system.- expressed either implicitly or explicitly. (Tiwari and Balasundaram, 2022). Most health care providers believe in the energy balance theory of weight control, which encourages the thinking of obesity issues being a personal responsibility and limiting the scope of appropriate counseling (Foster et al, 2003). This can impair the quality of care given to a patient and thus promoting inequality in healthcare. Weight bias has been reported to affect success in education, getting employed, and relationships. Reports have also shown that the media plays a role in weight bias (Nutter et al., 2016).

According to research, the stigmatization and discrimination of obese people have negative effects on their psychological and physical health including increased levels of stress, decreased motivation to engage in physical acting, binge-eating behavior, and depression (Rebecca and Chelsea, 2010). This shows that the obese people which make up a significant portion of the population suffer a lot from this discrimination. Therefore it is an important public health concern at should be addressed by the public health practice.

However, despite decades of science documenting weight stigma and its public health implications are widely ignored. Instead, obese persons are blamed for their weight, with common perceptions that weight stigmatization is justifiable and may motivate individuals to adopt healthier behaviors (Rebecca and Chelsea, 2010). Experts have proposed approaches to solving the problem of weight bias. First, weight stigmatization should be addressed in obesity intervention programs- one of the ways is by incorporating antistigma messages in obesity prevention campaigns. Second, designing and implementing policies that initiate social changes to help reverse the societal and environmental conditions that create obesity and its stigmatization. Third, laws should be enacted to prohibit discrimination and stigmatization of obese people (Rebecca and Chelsea, 2010).

Finally, it is of importance to note that socioeconomic inequalities in obesity are due to differential access to the resources required to access high-quality diets and physical activity. Therefore, rather than admonishments to the 'poor' to eat more prudently or exercise more frequently, the solution to socioeconomic inequalities in obesity presented by this framing is to provide everyone with access to adequate resources to achieve and maintain healthy body weight (Adams, 2020).

Obesity and Related Ethical Issues

Having been recognized as a public health problem, the prevention of obesity is prioritized in government and public health plans. Consequently, programs are rolled out to prevent obesity. However, according to experts, these programs are "susceptible to ethical pitfalls" (ten Have et al, 2012).

In many countries, current programs aimed at preventing obesity are flouted with ethical problems. There is a need for awareness of these ethical problems which threaten public health values. For instance, if a program implemented to prevent obesity has an unintended harmful effect, then the primary ethical principle which is: 'First, not harm' is threatened (O'Dea, 2005). This makes the program. undesirable and may also lead to societal objections and undermine the effectiveness of a program (Kass, 2001). Therefore, those who design, implement and justify obesity prevention programs must have awareness of its ethical pitfalls. This awareness enables them to be watchful of these problems and make informed decisions on program implementation (ten Have, 2012).

The ethical pitfalls of prevention programs for obesity are its effect on: " Physical health, psychosocial well-being, equality, informed choice, social and cultural values, privacy and the attributions of responsibilities and liberty. For physical health: Programs to prevent obesity may have negative effects on one's physical health. This program may increase the risk of eating disorders. Mostly these programs focused more on the problem of weight alone without considering other involving factors in weight gain. This can negatively affect obese individuals as they become discouraged to exercise or engage in the unhealthy weight-loss method. Also, some of these programs are only focused on making profit and may employ deceptive approaches to weight loss such as 'miracle-cures, unlicensed drugs and unconventional treatment which endangers the patient (ten Have, 2014).

For psychosocial well-being: Obesity prevention programs may have an unintended negative

psychosocial effect on obese individuals. These programs raise awareness about the health risk of obesity which can create fear and anxiety in obese people. Also, this program may lead to and further reinforce the existing stigmatization of obese people (ten Have, 2014).

As regards equality: Ironically, these programs are often less effective among the patient population that needs them the most. If a campaign contains information that is difficult for undereducated and low socioeconomic status to understand, it will likely not succeed and this leads to an increase in the already existing health inequalities as the people with high socioeconomic status get to benefit from the program. Also, programs targeted at obese people use criteria such as BMI to segregate them and treat them differently from the normal-weight individual which is a form of discrimination. However, this could be regarded as a positive form of discrimination (ten Have, 2014).

For informed decision: This program may provide information that is unclear, overstated, oversimplified, subjective, and inaccurate. This may be due to the rush to implement the program or due to the translation of epidemiological information to individual cases without reserve. For example, evidence that the population-wide adoption of a healthy diet can prevent 25% of all deaths from cardiovascular disease, does not indicate that adopting a healthy diet reduces each person's risk by 25%. Inadequate information is ethically sensitive since it affects the exercise of freedom of choice and autonomy and may have negative consequences on health (ten Have, 2014).

For social and cultural values: Programs to prevent obesity often raise awareness of the impact of eating habits on health. In doing so, this program usually overlooks that food and eating habits are more than just a biological need. There are sociocultural dimensions to it. For instance, food is used to celebrate, to show hospitality, or as a part of cultural traditions. Some measures aimed at changing people's lifestyles interfere with the social and cultural value of food (ten Have, 2014).

For privacy: In trying to help people lead healthier lives, program designers may interfere in the personal lives of obese individuals by seeking private sensitive information for example body weight, eating habits, and style of raising children (ten Have, 2014).

For responsibility: a program is ethically problematic if it goes against a just division of responsibilities or the balance between individual and collective responsibility. Suggesting that the responsibility for the overweight epidemic should be attributed to one single party disregards the fact that overweight is the result of a complex web of causal factors An emphasis on people's responsibility may disregard the influence of the social and physical environment, socio-economic status and genetic characteristics (ten Have, 2014).

For liberty: Programs to prevent obesity often aim to enable people to make healthy choices. While many of such programs are unproblematic it is sometimes overlooked that there is a thin line between enabling healthy choices and unwelcome intrusion. Influencing choices may be sensitive to issues of liberty, autonomy, and freedom of choice regarding lifestyle choices by individuals, employees, parents, and policy choices by commercial actors, schools, and other organizations (ten Have, 2014).

Ten Have et al (2012) applied the identified ethical aspects to design an ethical framework for the development of obesity programs. This framework was aimed at assisting professionals in

deliberating about ethical aspects of programs and policy to make an informed decision implementation. Eight questions formed a central part of this framework: "1) How does the program affect physical health? 2) How does the program affect psychosocial well-being? 3) How does the program affect equality? 4) How does the program affect informed choice? 5) How does the program affect social and cultural values? 6)How does the program affect privacy? 7) How does the program affect the attribution of responsibilities? 8)How does the program affect liberty?" Answers to these eight questions map the potential ethical pitfalls of a specific program. Therefore, countries should apply this framework in designing and implementing their intervention programs for obesity.

Recommended Interventions for Obesity

Although experts have identified prevention as the key strategy to curtail the spread of obesity, its objective is yet to be achieved as obesity persists and grows in society today. Nevertheless, governments and organizations still employ the preventive approach to control the obesity epidemic (Cakmur, 2017). It is well known that heavy children incur an increased risk of being overweight adults, and it is harder for them to lose excess weight, once it becomes established (Monaste et al, 2010). For this reason, the prevention of obesity, especially in the low age group, is the key strategy for controlling this epidemic problem (Cakmur, 2017). As part of intervention strategies, parents should be enlightened on the effect of their actions on their children (Cakmur, 2017). Also, diet and physical activity are two important factors in tackling obesity these two phenomena and the environmental factors linked to them are the optimal considerations in obesity (Hakefost *et al*, 2013).

Apart from detailed recommended diet values, an increase in general awareness and education would be beneficial. This general education should be basic enough and not cumbersome. It should typically include information such as 'limit consumption of fatty foods and saturated fats limit intake of sugars and salt', and 'increase consumption of fruits and vegetables' (Crombie *et al*, 2005, p. 11). Regarding physical activity, a basic plan of thirty minutes of moderate exercise for up to 5 days weekly is required to maintain good cardiovascular health. The attainment and maintenance of healthy/ideal body weight may require more activity time, depending on the current body mass index and weight g.ls.Several actions from public health organizations and governmental bodies are channeled reducing the prevalence of obesity (Hernández-Quevedo and Rechel, 2018). Local and global efforts are channeled towards regulating the price, advertisement, and availability of energy-packed food and drinks. On the global level, the WHO's Global Strategy on Diet, Physical Activity and Health (2004) is of high importance in the fight against obesity.

The World Health Organization (WHO) understands the encompassing measures needed to tackle local, regional, and global obesity rates. Hence, they have excellent recommendations for the roles of governments in reducing obesity in their region (Crombie *et al*, 2005, p. 13-14).

According to a WHO report in 2007, the evidence base for interventions at the individual, local, and community levels (micro- interventions) is more developed than the evidence base for population-wide interventions (macro-interventions), such as regulations on food pricing or

food promotion, although these have a greater potential to affect the world population and depend less for their implementation on household or local community resources. This is because randomized controlled trials are difficult to perform in open populations, and most controlled trials have been conducted in schools, health centers, and workplaces, settings that offer the greatest opportunities for control and manipulation. Using their outcomes to determine policy poses serious problems because school, community, and workplace interventions have been criticized for their lack of sustainability (few trials report long-term effects), lack of transferability, and high levels of resources required. Further, most such interventions have had little or no effect in preventing overweight and only modest effects in altering the determinants of obesity, such as diet and physical activity patterns (WHO, 2007)

Conclusion

Obesity is a health problem crucial to public health judging by the fact that affects all age groups and by its global prevalence, debilitating health, and economic consequences. Therefore, its prevention should be prioritized by the government. In drawing up policies for its control, the socioeconomic factors and the ethical concerns relating to obesity should be acknowledged In such policies and Intervention programs.

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