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Review Article

PREVALENCE AND MANAGEMENT OF OBESITY

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Abstract:

Introduction: Obesity is associated with significant increases in several morbidities and chronic diseases including diabetes mellitus type 2, malignancies, and cardiovascular diseases. This leads to significant depression, disability, and eventually higher mortality. Obesity is highly prevalent across the world, including the Middle East, due to the current lifestyle and many other adding etiologies.

Methodology: We conducted this review using a comprehensive search of MEDLINE, PubMed, and EMBASE, January 1985, through February 2017. The following search terms were used: obesity, prevalence of obesity, obesity in the Middle East, causes of obesity, management of obesity

Conclusion: Obesity rates have been increasing over the last decades, especially in Saudi Arabia and the Gulf countries, leading to significant increases in comorbidities and chronic diseases. To achieve better prevention, it is essential to increase awareness towards obesity among individuals. Improved dietary intake with the consumption of healthy food is essential. Another crucial factor is exercise and physical activity.

Keywords: obesity, prevalence of obesity in Saudi Arabia, obesity in the Middle East, obesity management

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INTRODUCTION:

Obesity is defined in a simpler way as having excess weight in proportion to height. More complex definitions of obesity will take into consideration its etiologies, adipose tissues volumes, metabolic disturbances, and other terms. Generally, obesity is associated with significant increases in several morbidities and chronic diseases including diabetes mellitus type 2, malignancies, and cardiovascular diseases. This will lead to significant depression, disability, and eventually higher mortality. When obesity occurs in a child, it associated with the same catastrophic complications but occurring even earlier and possibly in early adulthood. Therefore, long term complications and sequelae for obesity are catastrophic and lead to significant economic and social burden [1].

Etiologies of obesity are complex, and obesity depends on several factors, making it highly preventable. On the other hand, it is estimated today that about one third of all people around the world are overweight [2]. Moreover, these rates are even increasing with expectations to reach 38% of all individuals around the world to be overweight in 2030. In the United States specifically, it has been estimated, based on prior trends, that in the year 2030, more than 85% of individuals will be overweight [3]. Despite the stability of obesity prevalence and incidence in several other countries, rates of associated comorbidities and mortality have been paradoxically increasing especially in children [2]. Moreover, some developing countries are showing significant increases in obesity rates that are approaching the high rates in the United States.

METHODOLOGY:

• Data Sources and Search terms

We conducted this review using a comprehensive search of MEDLINE, PubMed, and EMBASE, January 1985, through February 2017. The following search terms were used: obesity, prevalence of obesity, obesity in the Middle East, causes of obesity, management of obesity

• Data Extraction

Two reviewers have independently reviewed the studies, abstracted data, and disagreements were resolved by consensus. Studies were evaluated for quality and a review protocol was followed throughout.

The study was approved by the ethical board of King Abdulaziz University Hospital.

Classification of Body Weight in Adults

The body mass index is universally considered to be the most common factor in defining and classifying

obesity in adults. Body mass index is an index that represents the proportion of weight to height, and is calculated by dividing weight (in kilograms) by height square (in meters). When body mass index is below 18.6 kg/m² an individual is considered underweight. A body mass index between 18.5 kg/m² and 25 kg/m² is considered normal. On the other hand, a body mass index that is higher than 40 kg/m² is considered a severe disabling morbid obesity. Other important factors in measuring and assessing obesity in both research and clinical settings include the measure of adiposity in the abdomen, also known as waist circumference. In fact, waist circumference has become recently a very important factor that should always be taken into consideration when assessing obesity [4]. Adipose tissue in the abdomen is generally thought to be visceral and metabolically active. This makes fat surrounding organs cause dysregulation in the metabolic activities which will make individuals prone to heart disease, diabetes mellitus type 2, and other diseases. This led to the introduction of the term (metabolic syndrome). Metabolic syndrome is generally defined as a group of conditions related to metabolic dysregulation that will lead to increased risk of heart disease. According to the definition of metabolic syndrome, a waist circumference that is higher than 94 cm in males and 80 cm in females is associated with significant higher risk of heart diseases [5].

International Prevalence

Due to the lifestyles in the United States and Europe, where food is readily available without restrictions, prevalence of obesity increased dramatically during the last century. Today, the numbers of individuals living in the United States with a body mass index higher than 25 are about double the individuals with a body mass index less than 25. All reports and estimations of obesity rates have shown continuously increasing trends. Over the last decade, the prevalence of obesity in the United States have reached 35%. Moreover, some ethnic groups have even higher prevalence of obesity. These include Hispanics and Blacks who have prevalence of 43% and 48%, respectively. Sex has also been found to influence obesity risk with females having relatively higher rates of obesity when compared to males and adjusted for age, race, and ethnicity [6].

On the other hand, obesity rates in Europe over the last twenty years, and when including large five European countries (the United Kingdom, Italy, Germany, Denmark, and the Netherlands) have been found to be about 17 in adults, which is significantly higher than before in this region. If these rates continue to increase in the same speed, prevalence is

expected to reach 30% soon. However, if sufficient awareness campaigns and health measures were taken, prevalence of obesity is expected to stop at 20% [7].

Other large epidemiological studies in Europe have suggested the presence of significant disparity in obesity rates between different countries in Europe. For example, a previously published systematic review has suggested that in 2008, while about 31% of individuals in the Czech Republic were obese, only 5% of individuals in French were obese. Moreover, Spain, Italy, and several countries in Eastern Europe has been found to have relatively higher rates of obesity than some northern and western European countries. All this information can indicate the social differences can be considered a significant factor in developing obesity [8].

Prevalence in gulf Countries and Saudi Arabia

Regarding obesity in Saudi Arabia, rates of obesity have been recently increasing to reach an alarming rate over the last twenty years. Generally, females appear to be more affected than males. The flourishing of industries and the economic growth in this area is thought to be associated with significant increase in obesity. Recent urbanization, improved lifestyle, and increase individuals' income are all factors that have played a significant role [9].

These improvements in the lifestyle in the Gulf area led to significant changes, along with the introduction of fast food into their lifestyle, increased use of processed food, and increased use of cars with less physical mobility, causing eventually significantly higher risk of developing obesity among residents of this area. The high consumption of fat food and salts is also a significant factor [10].

According to the World Health Organization, Saudi Arabia, Kuwait, United Arab Emirates, and Bahrain are among the ten highest countries around the world regarding obesity rates, making gulf countries in general, having highest obesity rates in the world. The worst of the gulf countries is Kuwait, with more than 42% of its population being obese. Additionally, Saudi Arabia and Qatar have obesity rates that reach 35.2% and 33.1% respectively [11].

There is not enough data to draw conclusions regarding obesity rates in other countries in the Middle East, but present data can suggest that these rates are dramatically increasing. Generally, all reports originating from United Arab Emirates, Qatar, Saudi Arabia, Bahrain, Lebanon, Kuwait, and Oman can confirm that since the sixties, obesity rates have continued to elevate.

Most recent reports from Saudi Arabia have suggested that up to 28% of Saudi males and 44% of Saudi females are overweight. These same reports have found that up to 36% of Kuwaiti males and 48% of Kuwaiti females are obese, and more than 70% of the general population are overweight. Generally, it is confirmed that female sex is associated with higher risk of developing obesity than male sex [11].

Factors Causing the Obesity

The recent advances in technology and lifestyle in the Gulf area is a crucial cause of the elevated obesity rates in these areas, especially in cities. A point that supports this is the significantly low rates of obesity in individuals living in the rural regions of Saudi Arabia, which be as low as 4%. Inhabitants of these areas usually have high physical activities due to their lifestyle. On the other hand, obesity rates in urban Saudi cities have high rates of obesity especially in children. A recent report has shown that despite low rates of obesity in children who live in rural Saudi Arabia, these rates were significantly higher in children who live in urban areas like Jizan (12%), Ha'il (34%), and Riyadh (22%). This is hypothesized to be due to their comfortable lifestyles and the wide-spread use of fast food [12]. In the United Arab Emirates, individuals who live in rural areas, and who still maintain what is called 'Bedouin' lifestyle, still have significantly lower rates of obesity when they are compared to inhabitants of other more developed cities in the United Arabs Emirates [13].

Another important factor that is thought to significantly contribute to the development of obesity is income. This is mainly the case in Arabic gulf countries that have relatively high incomes from exporting oil. For example, since 1973, the consumption of meat in Saudi Arabia has shown a five-fold increase, and the consumption of meat in other gulf countries has shown about a two folds increase. Studies show that generally, low income families and areas consume significantly less amounts of eggs, meat, and milk when compared to high income families and areas [14].

Extremely high outdoor temperatures can be considered an indirect cause of high obesity rates in these countries. These high temperatures are the main reason of lack of vegetation and forestation. Moreover, these high temperatures prevent people from practicing outdoor activities, leading to decreased physical activity [15].

Marital status could also contribute to obesity rates, with married individuals having higher rates of obesity when compared to non-married individuals.

A possible hypothesis of this is less activity, and increased food consumption in married people [16].

Education level can also play an important role in determining obesity rates in an area. In fact, illiteracy was found to be associated with significantly higher obesity rates in Gulf area. This was also shown in Syria where about half illiterate individuals were obese (in contrast to only 25% of educated people being obese). Reports from Jordan showed similar results, and individuals who had less than twelve years of education showed a 1.6 higher risk of being obese than individuals who had more than twelve years of education. Moreover, Lebanese individuals who do not have enough education have double the risk of being obese when compared to educated individuals [17].

When talking about the society in United Arab Emirates, there is a common belief that being obese indicates originating from a high social family. Moreover, obesity is sometimes considered to be associated with fertility, prosperity, and beauty. These perceptions could also play a role in the increasing rates of obesity [10].

Physical Inactivity:

The term 'physical activity' means moving body parts using skeletal muscles and resulting in the use of energy more than the basal use. The previously mentioned economic and technology raises in Gulf area have caused significant improvements of social and economic status along with lifestyle. Improved roads, availability of cars, and increase use of machines are all results of this technology revolution that occurred. The result of all this, unfortunately, is the development of a sedentary unhealthy lifestyle that eventually lead to the accumulation of fat and obesity [18].

A prior report has estimated that more than half male children in Saudi Arabia who are below twelve years of age have very little daily physical activity. Moreover, more than 80% of total male population in Saudi Arabia was found to be inactive. The worst of these, is that more than 91% of females in Saudi Arabia do not perform any kind of exercise of physical activity [19].

Obesity Rate among Women

In Gulf countries, and due to restriction on females due to traditional and cultural perceptions, females have significantly higher rates of obesity than males. For example, in Saudi Arabia, women do not have any access for exercise and sports. Even when it comes to household work, they import migrant labor

to achieve this, leading to total inactivity in adult women. It is estimated that almost none of women in Saudi Arabia or Kuwait do their housework or cooking, but instead they hire someone to do this. The main leisure activities where women in these areas spend most of their time became internet and TV, leading to augmentation of their sedentary lifestyle. Pregnancy also contributes to obesity, with each pregnancy leading to an average weight gain of about 4.5 kg [20].

Prevention of Obesity

Once it occurred, it is very difficult to reverse obesity, making prevention the key element in reducing prevalence. The first and main steps to be taken when considering obesity prevention is limiting food intake to nutritional need, exercising regularly, and checking weight routinely. The type of food should also be considered. Preferred types of food include those that provide less energy and high water and fiber content (like fruits) [21].

The German College of General Practitioners and Family Physicians has recommended the use of Mediterranean diet to decrease obesity rates. Guidelines also recommend against the intake of fast food, alcoholic drinks, and sugar-containing drinks. Fast food usually contains high fat and sugar index and high energy levels. Sugar containing drinks do not only include sweetened drinks, but also fruit juice [22; 23].

Sedentary lifestyle with long-times of sittings on internet and other kinds of leisure is also to be prevented in order to reduce obesity rates. Exercise and increased physical activity are essential daily to prevent obesity [24].

Treatment of Obesity

Goals

When dealing with obese patients, goals must be realistic rather than ideal, with evaluation on a case-basis. Generally, main goals of obesity treatment include long term body mass index reduction with more than five percent decrease from initial weight, reduction and even elimination of risk factors that lead to obesity, treatment of comorbidities associated with obesity, encouraging exercise and increasing physical activity, treatment of present psychological stress, and increasing quality of life [25].

Dietary Therapy

Obese patients should review their nutritional intake strictly, and apply dietary recommendations. Unless the patient agrees to significantly modify his/her

lifestyle, this will not be successful. On the other hand, it is essential for dietary intake reduction to be well studied in order to prevent energy problems and dysfunction that could negatively impact health. A diet that is efficient in reducing weight should aim at reducing an energy deficit that is in the range of 500 kcal daily. Some special cases may require a higher daily energy deficit. Possible strategies that may be applied to achieve this include the significant reduction of fat intake, and the significant reduction in sugars intake [25].

Achieving a daily energy deficit of 500 kcal daily can lead to about a 0.5 kg weight loss per week. This effect will be the same for about 12 or possibly 24 weeks. Fat consumption could be simply reduced. On the other hand, a diet with low sugars intake is associated with less improvements on the long term. The composition of macronutrient (which means the ratio of fats to other elements) is not associated with efficient weight loss [26].

Exercise

To achieve optimal weight loss, at least 2.5 hours of exercise are required per week, which is equivalent to about 1800 kcal consumption per week. It is not effective however to practice strength training solely. The groups of muscle used during exercise is also important and plays an important role in determining the efficacy of exercise in weight loss [24].

It is important to explain to patients the advantages that they will get when they exercise. These advantages include all metabolic, psychological, and cardiovascular aspects. Providing thorough explanations for these patients will lead to higher compliance rates and better weight reduction [27].

CONCLUSION:

Obesity rates have been increasing over the last decades leading to significant increases in comorbidities and chronic diseases. This lead to heavy social and economic burden on societies in general and health care system specifically. Obesity leads to huge costs on both the individual and the society, and its prevalence has been significantly raising. With its difficult treatment, the main key to decrease prevalence is prevention. To achieve better prevention, it is essential to increase awareness towards obesity among individuals. Improved dietary intake with the consumption of healthy food is essential. Another crucial factor is exercise and physical activity.

REFERENCES:

1. **Ofei F (2005):** Obesity - a preventable disease.

Ghana Med J., 39: 98-101.

2. **Stevens GA *et al.* (2012):** National, regional, and global trends in adult overweight and obesity prevalences. *Popul Health Metr.*, 10: 22.
3. **Wang Y, Beydoun MA, Liang L, Caballero B, Kumanyika SK (2008):** Will all Americans become overweight or obese? estimating the progression and cost of the US obesity epidemic. *Obesity (Silver Spring)*, 16: 2323-2330.
4. **Hu FB (2007):** Obesity and mortality: watch your waist, not just your weight. *Arch Intern Med.*, 167: 875-876.
5. **Alberti KG *et al.* (2009):** Harmonizing the metabolic syndrome: a joint interim statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity. *Circulation*, 120: 1640-1645.
6. **Ogden CL, Carroll MD, Kit BK, Flegal KM (2014):** Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA*, 311: 806-814.
7. **von Ruesten A *et al.* (2011):** Trend in obesity prevalence in European adult cohort populations during follow-up since 1996 and their predictions to 2015. *PLoS one*, DOI: 10.1371/journal.pone.0027455
8. **Berghofer A, Pischon T, Reinhold T, Apovian CM, Sharma AM, Willich SN (2008):** Obesity prevalence from a European perspective: a systematic review. *BMC Public Health*, 8: 200.
9. **Papandreou C, Mourad TA, Jildeh C, Abdeen Z, Philalithis A, Tzanakis N (2008):** Obesity in Mediterranean region (1997-2007): a systematic review. *Obes Rev.*, 9: 389-399.
10. **al-Mahroos F, al-Roomi K (1999):** Overweight and obesity in the Arabian Peninsula: an overview. *J R Soc Promot Health*, 119: 251-253.
11. **S AL (2014):** Obesity in gulf countries. *Int J Health Sci. (Qassim)*, 8: 79-83.
12. **Al-Hazzaa HM (2004):** Prevalence of physical inactivity in Saudi Arabia: a brief review. *East Mediterr Health J.*, 10: 663-670.
13. **Malik M, Bakir A (2007):** Prevalence of overweight and obesity among children in the United Arab Emirates. *Obes Rev.*, 8: 15-20.
14. **Al-Othaimen AI, Al-Nozha M, Osman AK (2007):** Obesity: an emerging problem in Saudi Arabia. Analysis of data from the National Nutrition Survey. *East Mediterr Health J.*, 13: 441-448.
15. **Al-Kandari YY (2006):** Prevalence of obesity in Kuwait and its relation to sociocultural variables.

- Obes Rev., 7: 147-154.
16. **Olson CM, Strawderman MS, Hinton PS, Pearson TA (2003):** Gestational weight gain and postpartum behaviors associated with weight change from early pregnancy to 1 y postpartum. *Int J Obes Relat Metab Disord.*, 27: 117-127.
 17. **Fouad M, Rastam S, Ward K, Maziak W (2006):** Prevalence of obesity and its associated factors in Aleppo, Syria. *Prev Control.*, 2: 85-94.
 18. **Caspersen CJ, Powell KE, Christenson GM (1985):** Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. *Public Health Rep.*, 100: 126-131.
 19. **Al-Hazzaa HM, Abahussain NA, Al-Sobayel HI, Qahwaji DM, Musaiger AO (2011):** Physical activity, sedentary behaviors and dietary habits among Saudi adolescents relative to age, gender and region. *Int J Behav Nutr Phys Act*, 8: 140.
 20. **al-Shammari SA, Khoja TA, al-Maatouq MA, al-Nuaim LA (1994):** High prevalence of clinical obesity among Saudi females: a prospective, cross-sectional study in the Riyadh region. *J Trop Med Hyg.*, 97: 183-188.
 21. **Bes-Rastrollo M, van Dam RM, Martinez-Gonzalez MA, Li TY, Sampson LL, Hu FB (2008):** Prospective study of dietary energy density and weight gain in women. *Am J Clin Nutr.*, 88: 769-777.
 22. **Sayon-Orea C, Martinez-Gonzalez MA, Bes-Rastrollo M (2011):** Alcohol consumption and body weight: a systematic review. *Nutr Rev.*, 69: 419-431.
 23. **Vartanian LR, Schwartz MB, Brownell KD (2007):** Effects of soft drink consumption on nutrition and health: a systematic review and meta-analysis. *Am J Public Health*, 97: 667-675.
 24. **Donnelly JE *et al.* (2009):** American College of Sports Medicine Position Stand. Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. *Med Sci Sports Exerc.*, 41: 459-471.
 25. **Witham MD, Avenell A (2010):** Interventions to achieve long-term weight loss in obese older people: a systematic review and meta-analysis. *Age Ageing.*, 39: 176-184.
 26. **Astrup A, Grunwald GK, Melanson EL, Saris WH, Hill JO (2000):** The role of low-fat diets in body weight control: a meta-analysis of ad libitum dietary intervention studies. *Int J Obes Relat Metab Disord.*, 24: 1545-1552.
 27. **Gohner W, Schlatterer M, Seelig H, Frey I, Berg A, Fuchs R (2012):** Two-year follow-up of an interdisciplinary cognitive-behavioral intervention program for obese adults. *J Psychol.*, 146: 371-391.